ADMIRAL
CHASSIS 6EI, 6EIN

ADMIRAL MODEL 6P32

TRADE NAME	Admiral Model 6P32 (Chassis-6EI,6EIN)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago, Ill.
TYPE SET	Three Power Portable AC-DC Battery Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 1N5GT RF Amp., 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output, 117Z6GT Rectifier.
POWER SUPPLY RATING	105-125 Volts AC-DC or 90 Volt "B" Supply: 9Volt "A" Supply, in Pack Form .190 Amps. @ 117V AC - 57MA @ 9V DC & 11.5 MA @ 90V DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS

Use battery whenever possible when aligning. Disconnect loop and remove chassis from cabinet. Connect 50K carbon resistor across two clips from which loop was removed. Turn volume control to full volume and adjust output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to grid cap of 1A7. Low side to B-.	455KC	Any point of no interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If receiver is connected to AC power use isolation transformer or connect isolating capacitor between generator ground lead and B- and decrease dummy ant. to .00025 MFD.
.1 MFD.	High side to grid cap of 1N5. Low side to B-.	1620KC	Rotor fully open. (Plates out of mesh)	"	A5	"
.1 MFD.	"	1400KC	Tune in 1400KC signal.	"	A6	"
Replace set in cabinet and connect to loop ant.						
250 MMF.	High side to ant. lead. Low side to ground lead.	1400KC	Tune in 1400KC signal.	"	A7	Adjust for maximum output.
Disregard next two adjustments if set being aligned is a model with a fixed loop loading coil.						
250 MMF.	High side to ant. lead. Low side to ground lead.	600KC	Tune in 600KC signal.	Across voice coil	A8	Adjust for maximum output.
250 MMF.	"	1400KC	Tune in 1400KC signal.	"	A7	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1N5GT	1N5GT	5Y	
2	Converter	1A7GT	1A7GT	7Z	
3	IF Amp.	1N5GT	1N5GT	5Y	
4	Det.-AVC-AF	1H5GT	1H5GT	5Z	
5	Power Output	3Q5GT	3Q5GT	7AP	
6	Rectifier	117Z6GT	1176GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	67C7-42	FP309	DY-40+20-150	EL-351	AF1010D	UP6CJ62	■ Filter
B	50	150			100-25		PRS25/100		▲ "
C	100	25							"
8	.05	400	64B1-22	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Filter
9	.2	400	64A2-1	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
10	.002	600	64B1-14	TP405	S-6-002	TC-22	684-.002	DT6D2	3Q5 Plate Bypass
11	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
12	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
13	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	AVC Filter
14	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	" "
15	.01	400	64B1-25	TP421	S-4-01	TC-11	484-.01	DT4S1	1A7 Screen
16	.25	200	64B1-28	TP430	S-4-25	TC-2	484-.25	DT4P25	Filament Bypass
17	.05	200	64B1-32	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
18	250	500	65B5-22	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	Audio Plate Bypass
19	15	500	65B5-3						Fixed Trimmer
20	50	500	65B5-11	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cond.
21	250	500	65B5-22	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	RF Coupling
22	420	500	65B1-9	MCB243	M0S.5-34	MS-34	1469-.0004	5W5T4	Fixed Trimmer

CONTROLS

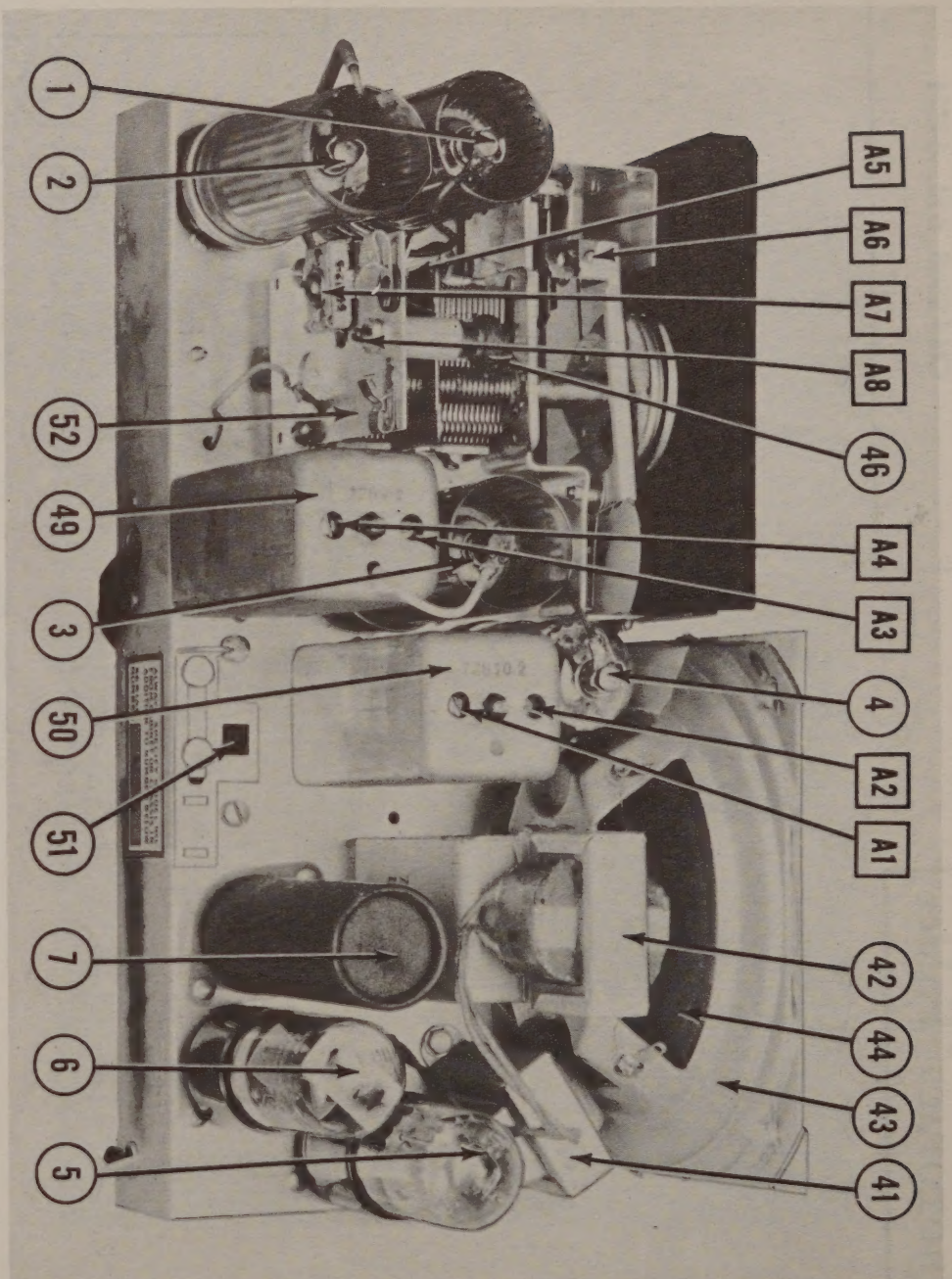
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	1 Meg.	1	75B1-100	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 23A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	IDENTIFICATION CODES
24	100KΩ	½	60B8-104	BTS-100K	Br.-Blk.-Yl. AVC Network
25	220KΩ	½	60B8-224	BTS-220K	Red-Red-Yl. Osc. Grid
26	47KΩ	½	60B8-473	BTS-47K	Yl.-Vi.-Or. Osc. Screen Dropping
27	4.7 Meg.	½	60B2-475	BTS-4.7 Meg	Yl.-Vi.-Grn. AVC Network
28	4.7 Meg.	½	60B2-475	BTS-4.7 Meg	Yl.-Vi.-Grn. " "
29	4.7 Meg.	½	60B2-475	BTS-4.7 Meg	Yl.-Vi.-Grn. " "
30	3.3 Meg.	½	60B2-335	BTS-3.3 Meg	Or.-Or.-Grn. " "
31	15 Meg.	½	60B2-156	BTS-15 Meg.	Br.-Grn.-Blue 1st AF Grid Load
32	1 Meg.	½	60B2-105	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
33	2.2 Meg.	½	60B2-225	BTS-2.2 Meg	Red-Red-Grn. Output Grid
34	2450Ω	5	61A3-5	ABA-2500*	Filament Dropping
35	22Ω	½	61A2-2	BW-½-22	Red-Red-Blk. Surge Limiter
36	1500Ω	½	60B8-152	BTS-1500	Br.-Grn.-Red Filament Shunt
37	560Ω	½	60B8-561	BTS-560	Grn.-Blue-Br. Filament Shunt
38	220Ω	½	60B8-221	BW-½-220	Red-Red-Br. Filament Shunt
39	120Ω	½	60B8-121	BW-½-120	Br.-Red-Br. Filament Shunt
40	33KΩ	½		BTS-33K	Or.-Or.-Or. Filament Dropping Shunt

*Adjust Tap to 2450Ω

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000)	ADMIRAL PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
41	65MA	255Ω	5H	74A5			

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ADMIRAL PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
42	9650Ω	2Ω	750Ω	.82Ω	Part of 78B8	A-3822‡	T-22S47		‡Bend mounting tabs down and mount on original bracket. File slots if necessary.

SPEAKER

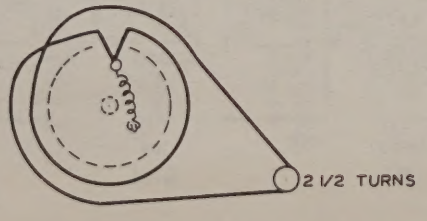
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ADMIRAL PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-107		
43	PM	2Ω	78B8	Mod. P5-V		Drill new mounting holes.
	CONE DIA.	VC DIA.				
44	5-1/4"	5/8"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	
45	Loop Ant.	0Ω	8Ω			
46	Ant. Load Coil	2.5Ω		AA115		Some models use fixed coil AA114
47	RF Coil	3.8Ω		70A1-30		Slug for coil 71B1-3
48	Osc. Coil	2.5Ω	6Ω	69A7	14-1040	
49	Input IF	15Ω	15Ω	72B9-2	16-6658	
50	Output IF	16Ω	16Ω	72B10-2	16-6670	

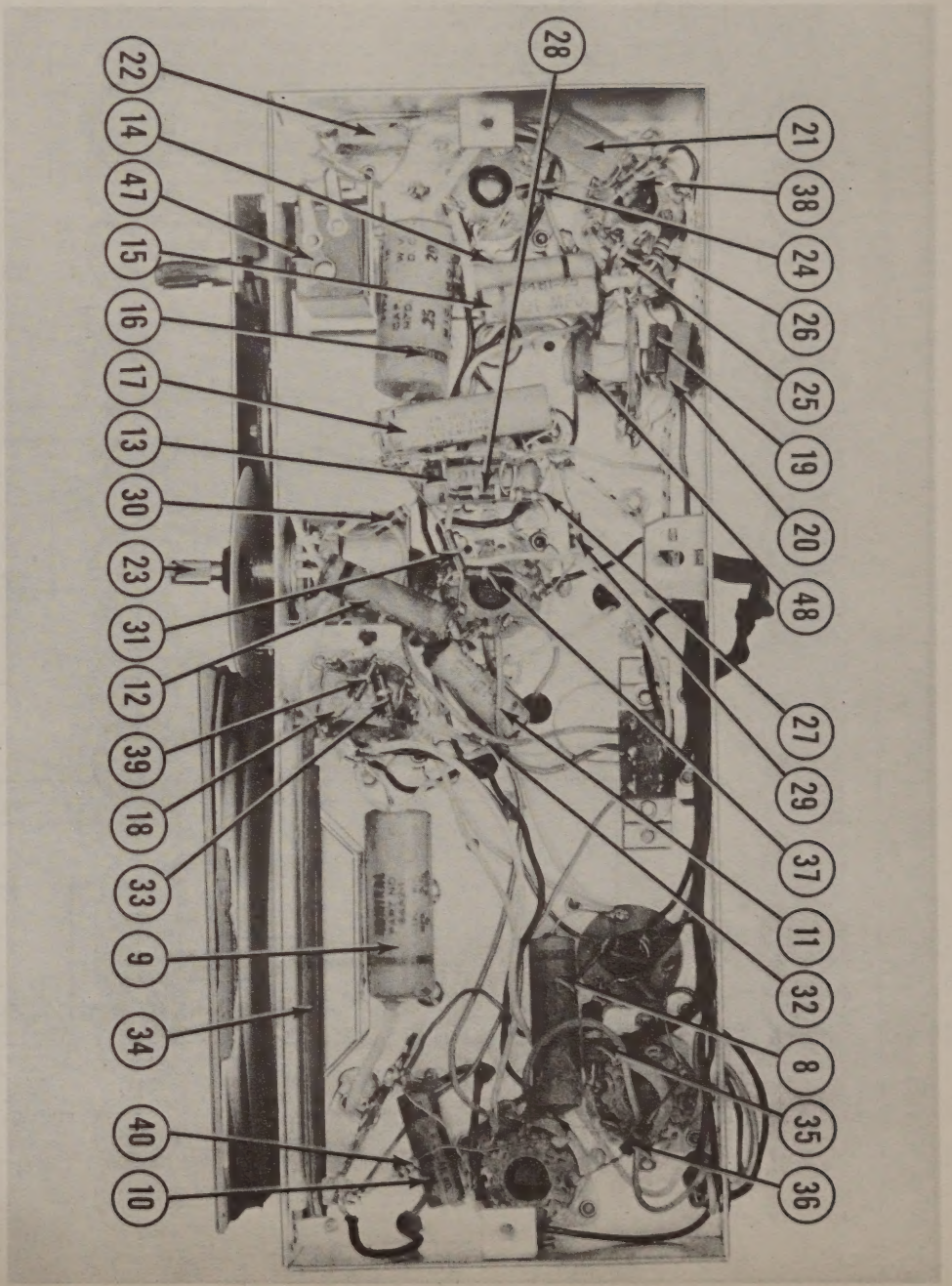
MISCELLANEOUS

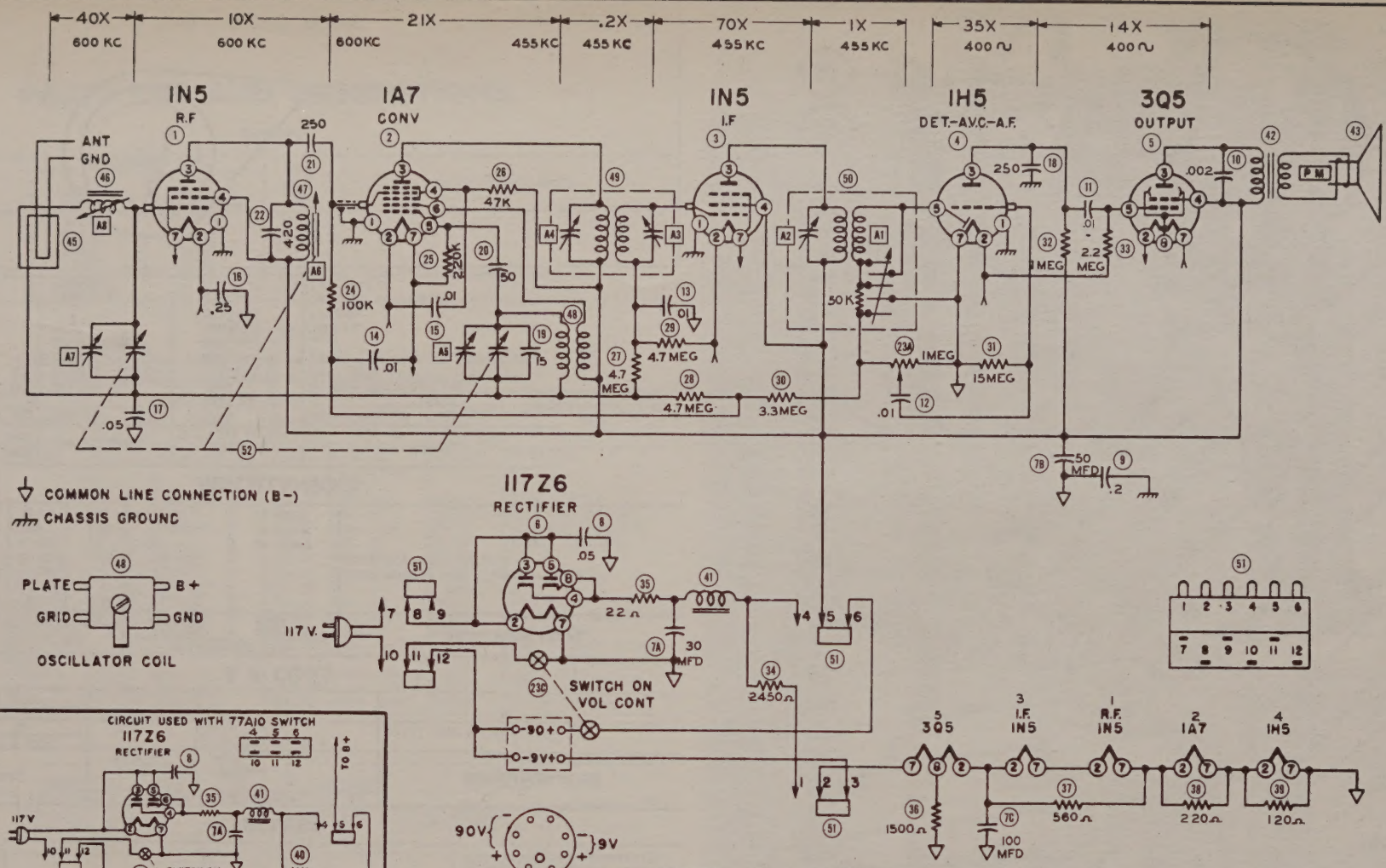
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
51A	Switch	77A6	Power Change (6EI)
B	"	77A10	" " (6EIN)
52	Tuning Cap.	68B4	2 Gang Variable Cap.
A7	Trimmer Cap.	66A12-5	Ant. Adj.
	Scale	23C11-1	Glass
	Escutcheon	23C11-2	
	Knob	33A14-4	Tuning
	"	33A14-3	Volume
	Plug	88A3-3	Battery (9 Prong)
	Pointer	25A14-2	Tan Tenite



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





NOTES: I.F.=455 Kilocycles
Power change switch ((51)) shown in battery operation position.
In some models, loop loading coil ((46)) was fixed.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1N5GT	0V.	4.4V.DC	110V.DC	110V.DC	0V.	0V.	2.8V.DC	0V.	0V.
2	1A7GT	0V.	2.8V.DC	110V.DC	60V.DC	0V.	110V.DC	1.4V.DC	0V.	0V.
3	1N5GT	0V.	5.8V.DC	110V.DC	110V.DC	0V.	2.9V.DC	4.4V.DC	0V.	0V.
4	1H5GT	0V.	1.4V.DC	65V.DC	0V.	0V.	0V.	0V.	0V.	0V.
5	3Q5	0V.	5.8V.DC	100V.DC	107V.DC	0V.	0V.	8.2V.DC	7.0V.DC	
6	117Z6GT	0V.	117V.AC		117V.AC	127V.DC	117V.AC	0V.	0V.	127V.DC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1N5GT	INF	45Ω	2200Ω	2200Ω	INF	3.2MEG	33Ω	INF	INF
2	1A7GT	INF	33Ω	2200Ω	48KΩ	220KΩ	2200Ω	18Ω	3.2MEG	3MEG
3	1N5GT	INF	55Ω	2200Ω	2200Ω	12MEG	33Ω	45Ω	INF	3.2MEG
4	1H5GT	INF	18Ω	1MEG	2.2MEG	1.1MEG	0Ω	0Ω	INF	12MEG
5	3Q5	INF	55Ω	2800Ω	2000Ω	2.2MEG	INF	69Ω	62Ω	
6	117Z6T	INF	250Ω	250Ω	2400Ω	250Ω	INF	0Ω	2400Ω	

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

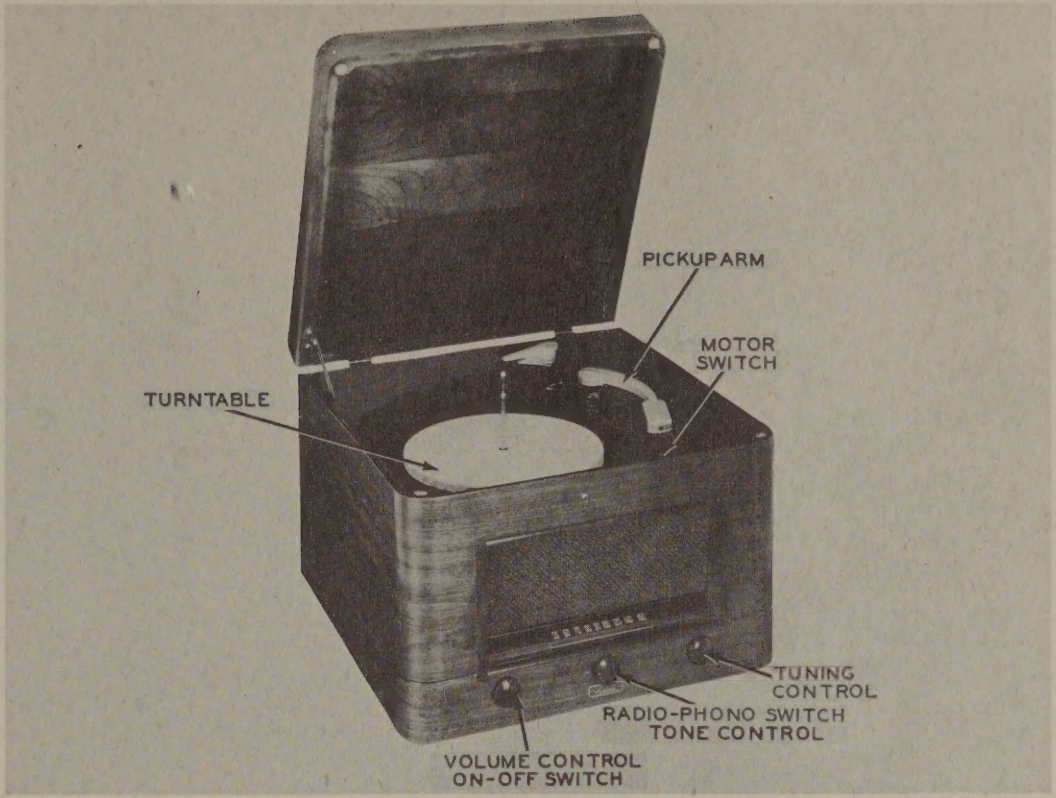
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

466-1

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to B-.

1-DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2-Socket connections are shown as bottom views.
3-Measured values are from socket pin to common negative.
4-Line voltage maintained at 117 volts for voltage readings.
5-Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6-Volume control at maximum, no signal applied for voltage measurements.

AIRLINE
MODELS 64WG-2009A, 64WG-2009B



AIRLINE
MODELS 64WG-2009A, 64WG-2009B

AIRLINE MODEL 64WG-2009A

TRADE NAME	Airline Models 64WG-2009A, 64WG-2009B
MANUFACTURER	Montgomery Ward & Co., 819 Chicago Ave., Chicago, Ill.
TYPE SET	AC Operated Comb. Auto. Phono.-Superheterodyne Receiver, Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Mixer, 12SF7 IF-Det.-AVC, 12SJ7 Audio Amp., 35L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	105-125 Volts AC RATING - .230 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS

Set dial pointer and diffuser strip as shown on dial calibration diagram. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #2 (grid) 12SF7. Low side to B-.	455KC	Tuning control maximum clockwise.	Across voice coil.	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
.1 MFD.	High side to pin #8 (grid) 12SA7. Low side to B-.	"	"	"	A3,A4.	"
.1 MFD.	"	1400KC	1400KC index line.	"	A5	"
50 MMFD.	High side to ext. ant. clip. Low side to chassis.	"	"	"	A6,A7.	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Mixer	12SA7	12SA7	8R	
3	IF-Det.-AVC	12SF7	12SF7	7AZ	
4	Audio Amp.	12SJ7	12SJ7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	45X345	2N521	DHN-2x50-150	TA-530	PRS150-40-40	EZ5515	Filter - Red
B	50	150							" - Blue
C	20	25		TC26	M-10-25	TA-25	PRS25-25	BR202A	Cath. Bypass - Yellow
8	.1	400	D66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Filter
9	.2	200	B67204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
10	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	35L6 Plate Bypass
11	.025	200	B64253	TP451	S-4-02	TC-12	484-.025	DT6S25	Audio Plate Decoup.
12	.01	200	B66103	TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
13	.1	200	B66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Screen Bypass
14	.006	200	B66602	TP409	S-6-006	TC-26	484-.006	DT6D6	Audio Coupling
15	.04	200	B64403	TP425	S-6-04	TC-14	484-.04	DT4S4	Tone Compensation
16	.1	200	B66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Tone Compensation
17	.08	200	B64803	TP452	S-4-1	TC-1	484-.075	DT4P1	Phono Coupling
18	.05	200	B66503	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
19	.001	200	B66102	TP404	S-6-001	TC-21	484-.001	DT6D1	" "
20	.001	200	B66102	TP404	S-6-001	TC-21	484-.001	DT6D1	" "
21	.001	200	B66102	TP404	S-6-001	TC-21	484-.001	DT6D1	RF Coupling
22	.001	400	D66102	TP404	S-6-001	TC-21	484-.001	DT6D1	Ant. Coupling
23	.05	200	B67503	TP426	S-4-05	TC-15	484-.05	DT4S5	Decoupling *
24	470	500	47X467	MC245	M0.5-35	1FM-35	1468-.0005	5W5T5	Audio Plate Bypass
25	47	500	47X463	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Tone Compensation
26	100	500	47X476	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	IF Bypass Diode
27	47	500	47X446	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Capacitor

*Used in series B models only.

CONTROLS

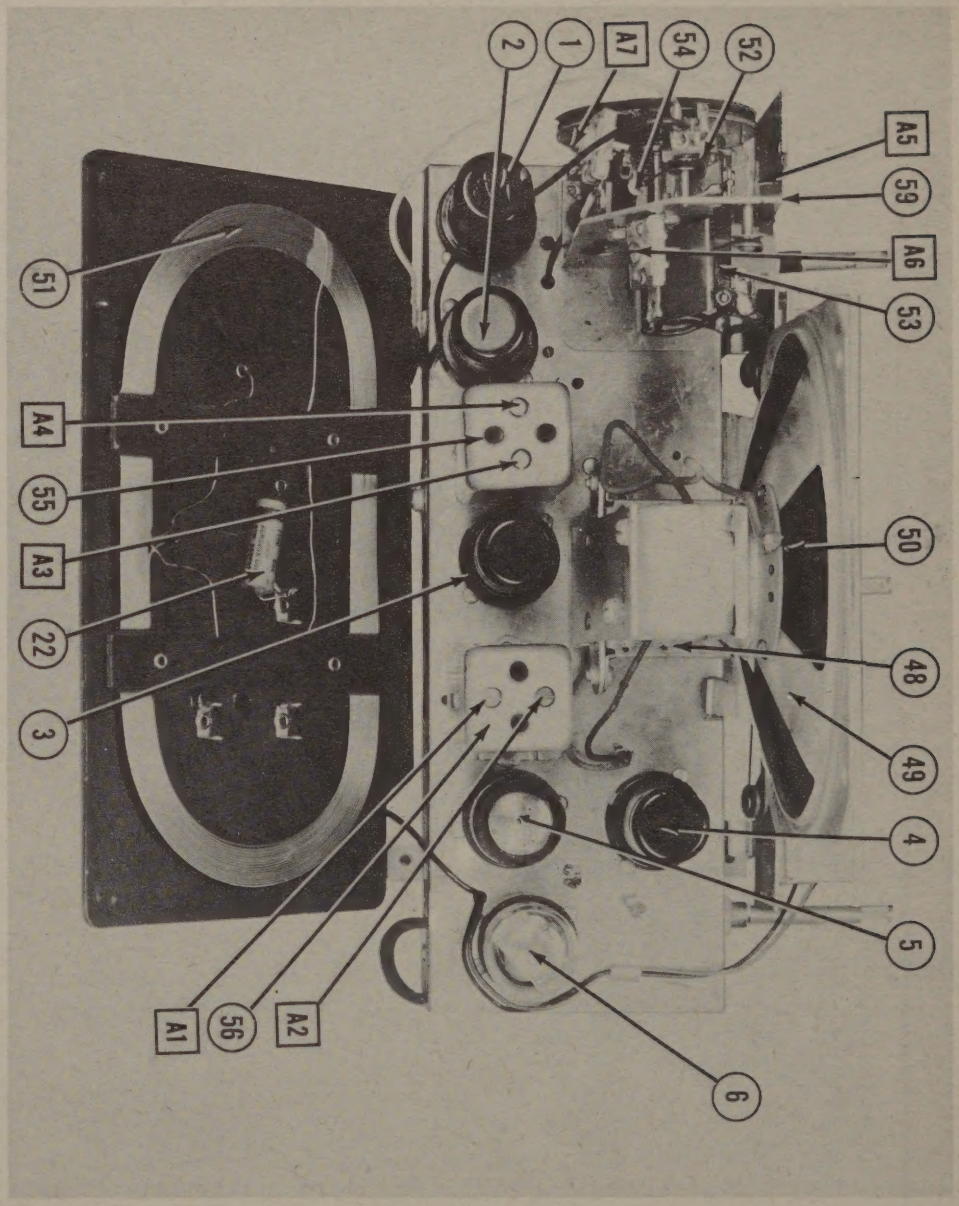
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
28A	500KΩ	1	36X347	TM230	D13-133X	AT92‡	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 28A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

‡Use 100KΩ tap. Cut off other tap.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	IRC PART No.	IDENTIFICATION CODES
29	220KΩ	½	B85224	BTS-220K	Red-Red-Yl. AVC Network
30	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. RF Plate Load
31	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Mixer Grid
32	39KΩ	½	B84393	BTS-39K	Or.-White-Or. Osc. Grid
33	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
34	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. IF Filter
35	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
36	4.7 Meg.	½	B85475	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
37	470KΩ	½	B84474	BTS-470K	Yl.-Vi.-Yl. 1st AF Screen Dropping
38	33KΩ	½	B84333	BTS-33K	Or.-Or.-Or. 1st AF Plate Load

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
39	82KΩ	½	B84823	BTS-82K	Gray-Red-Or. 1st AF Plate Filter
40	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
41	180Ω	½	B83181	BW-½-180	Br.-Gray-Br. Output Cathode
42	470Ω	½	B85471	BTS-470	Yl.-Vi.-Br. Filter *
43	1500Ω	1	C84152	BTA-1500	Br.-Grn.-Red Filter
44	27Ω	½	B84270	BW-½-27	Red-Vi.-Blk. Rectifier Ballast
45	39Ω	2	D84390	BW-2-39	Or.-White-Blk. Line Dropping
46	270KΩ	½	B84274	BTS-270K	Red-Vi.-Yl. Line Isolating
47	100KΩ	½	B85104	BTS-100K	Br.-Blk.-Yl. Series Phono

*Used in series B models only.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
48	3000Ω	3.5Ω	350Ω	.85Ω	51X116	A-3876†	T-13639†		†Drill new mounting holes

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
49	PM	3.5Ω	12A437			
	CONE DIA.	VC DIA.				
50	4x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
51	Loop Ant.	0Ω	.8Ω	9A-1817		
52	Ant. Coil	.5Ω	8Ω			Items 52, 53, 54 ganged and slug tuned
53	RF Coil		8.3Ω			
54	Osc. Coil	.7Ω	6Ω			
55	Input IF	22Ω	22Ω	9A-1775	16-6658	
56	Output IF	21.8Ω	18.3Ω	9A-1776	16-6660	

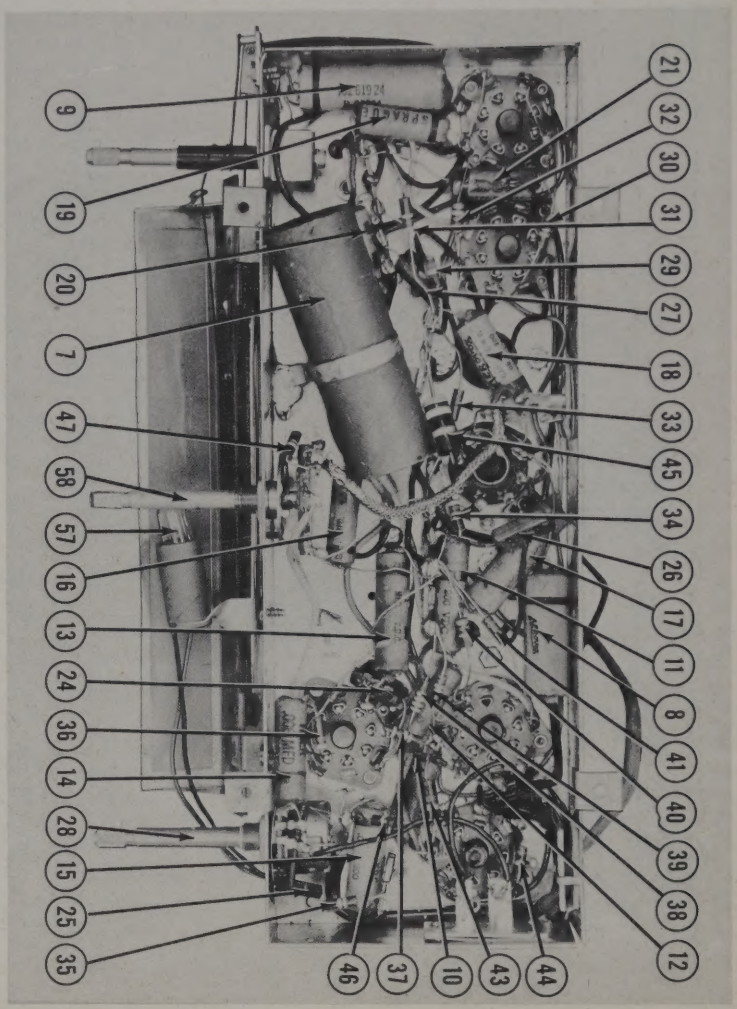
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
57	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

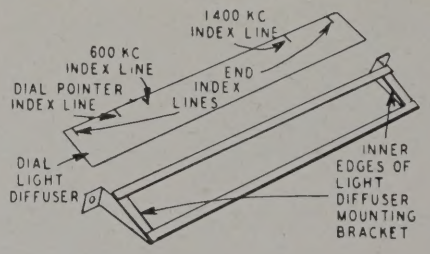
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
58	Switch	2A357	Radio-Phono
59	Tuning Assby.	20A97	Complete Unit
A5	Trimmer	17A239	Osc. Adj. 40-370 MMF
A6	"	17A243	RF " 4-70 MMF
A7	"	17A238	Ant. " 4-70 MMF
	Drive Shaft	26X464	
	Pointer Bracket	25X1384	
	Diffuser	41X78	Dial Light
	Pointer	15X217	
	Tension Spring	28X95	Drive Cord
	Dial	58X651	
	Motor	G-56-72092	
	"	G-56-72096	
	Crystal Cartridge		Astatic L-75 or equivalent

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

1. Remove the following push-on type knobs: Off-On Volume Control, Radio-Phono-Tone Switch and Tuning Control.
2. Remove six wood screws from chassis board holding chassis to cabinet. Remove chassis board.
3. Remove four staples holding antenna loop to cabinet. Remove antenna loop.
4. Disconnect phono-motor plug from chassis.
5. Disconnect phono-pickup jack from chassis.
6. Remove four hex screws and washers holding chassis to chassis board. Remove chassis.
7. Remove staple holding line cord to cabinet. Remove line cord and replace staple.


1400 KC INDEX LINE
600 KC INDEX LINE
END INDEX LINES
DIAL POINTER INDEX LINE
DIAL LIGHT DIFFUSER
INNER EDGES OF LIGHT DIFFUSER MOUNTING BRACKET

DIAL CALIBRATION

In order to align the receiver, the dial pointer must be positioned on the dial string correctly with reference to the dial. Index lines are provided on the dial light diffuser for this purpose.

Before aligning the receiver (or when replacing the dial light diffuser) check the position of the diffuser strip, making certain that the two end index lines are aligned with the inner edges of the diffuser mounting bracket opening. The bracket should be crimped to prevent movement of the diffuser strip. To position the dial pointer, adjust the radio to the "stop" position at the low frequency end of the dial. The dial pointer should be directly over the dial pointer index line. (See illustration.) If not, move the pointer along the drive cord until it is directly over the index line.

The 1400KC index line is for use when aligning the receiver.

VOLTAGE READINGS

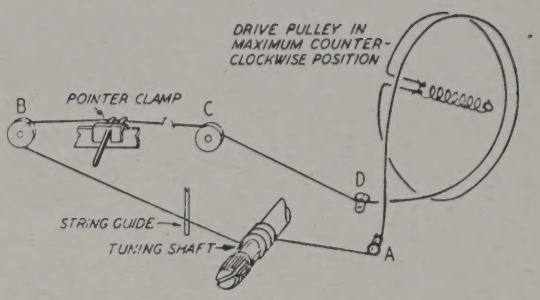
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0V	2.96V.AC	0V	-.57V.DC	0V	48V.DC	42V.AC	48V. DC
2	12SA7	0V	53V. AC	87V. DC	87V. DC	-4V. DC	0V	42V.AC	-.2V. DC
3	12SF7	0V	-.6V. DC	0V	87V.DC	-.2V. DC	87V. DC	11.5V.AC	23.6VAC
4	12SJ7	0V	0V	0V	-.57V.DC	0V	20V. DC	11.5V.AC	29V. DC
5	35L6GT	0V	87V.AC	108V. DC	87V.DC	0V	0V	53V. AC	5.6 V.DC
6	35Z5GT	0V	117V.AC	113V.AC	0V	112V.AC	0V	87V. AC	117V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	295KΩ	62Ω	0Ω	3MEG	0Ω	121KΩ	75Ω	121KΩ
2	12SA7	295KΩ	85Ω	106KΩ	106KΩ	38KΩ	.5Ω	75Ω	3.2 MEG
3	12SF7	295KΩ	3.1 MEG	0Ω	106KΩ	600KΩ	106KΩ	12Ω	24Ω
4	12SJ7	295KΩ	0Ω	0Ω	4.5 MEG	0Ω	576KΩ	12Ω	221KΩ
5	35L6GT	295KΩ	115Ω	105KΩ	106KΩ	490KΩ	1 NF	85Ω	175Ω
6	35Z5GT	295KΩ	145Ω	142Ω	1 NF	168Ω	1 NF	115Ω	105KΩ

NOTE: V & R TAKEN IN BROADCAST POSITION

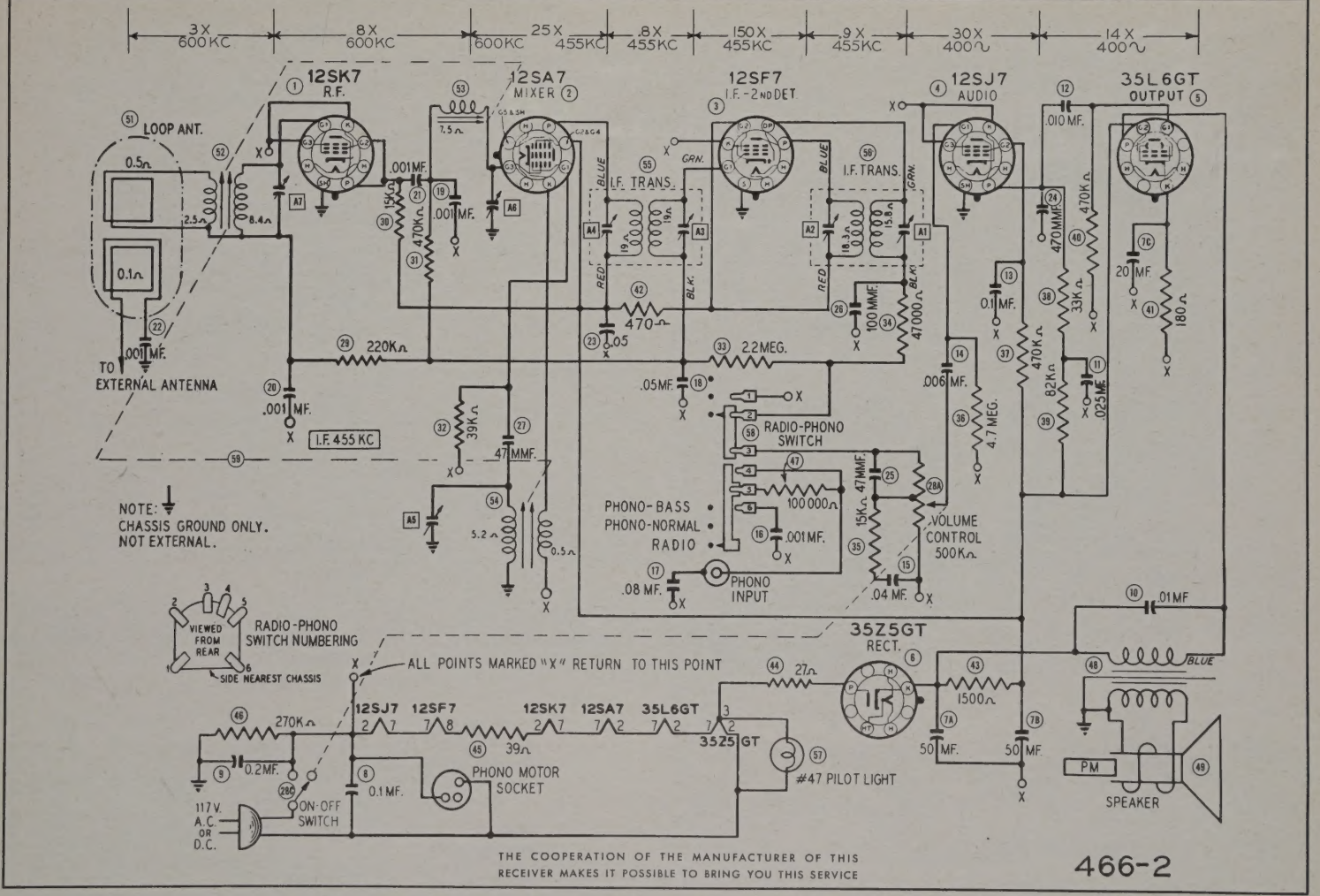
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DRIVE CORD REPLACEMENT

The illustration above shows the method of stringing the drive cord. Use a new drive cord 40" long and tie one end to the tension spring. Hook the other end of the tension spring over the tab on the drive pulley. Pass the cord through the slot in the pulley rim and continue counter-clockwise around the pulley as shown. Three turns must be wound around the tuning shaft in a clockwise direction with the turns progressing away from the chassis. (On sets with a black vinylite sleeve on the tuning shaft, wind only two turns around the shaft).

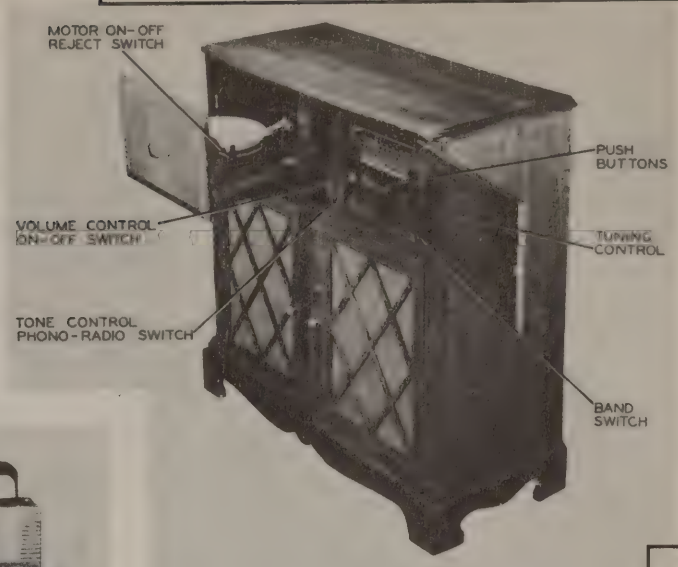
Attach the dial pointer to the cord and position, as instructed in paragraph DIAL CALIBRATION.

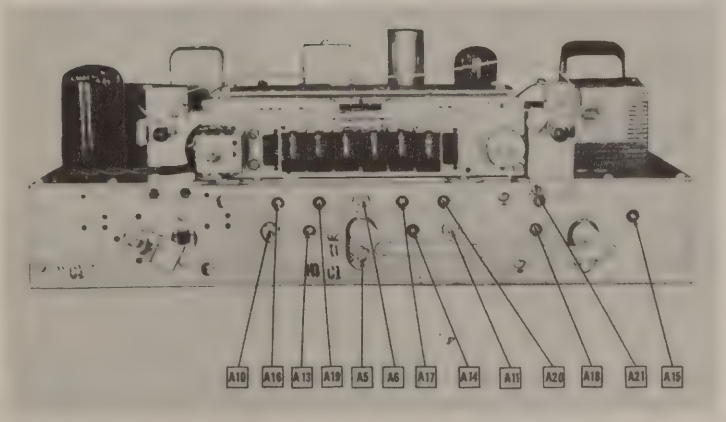


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

466-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made [illegible] operative and 3-volt battery bias substituted for measurement.





BELMONT
MODEL 8A59

BELMONT MODEL 8A59

TRADE NAME	Belmont Model 8A59
MANUFACTURER	Belmont Radio Corp., 5921 W. Dickens Ave., Chicago, Ill.
TYPE SET	AC Operated Combination Automatic Phono. - 5 Band Superheterodyne Receiver, Self Contained Loop Antenna
TUBES (EIGHT)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6J5GT Inverter, 2-6K6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .610 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC SHORT WAVE 5.96-6.19MC, 9.1-10MC, 11.45-12.16MC, 14.94-15.46MC

ALIGNMENT INSTRUCTIONS

Remove dial from cabinet. Set tuning mechanism so that core bar is 1/32 of an inch from stops at high freq. end. (Slugs out of coils). With tuning mechanism in this position, mount dial on top of the tuning assembly so that pointer reads 1600KC. Turn dial drive fully counter-clockwise and adjust cores of broadcast coils so that end of core is 1-5/32" from end of coil. (See sketch). Adjust cores of 9MC coils so that end of core is 1-1/16" from end of coil. (See sketch). Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. After alignment is completed, mount dial in cabinet. Set tuning mechanism so that core bar is 1/32 of an inch from stops at high freq. end. Mount chassis in cabinet, taking care that tuning mechanism is not moved, and check pointer setting. If not at 1600KC. move pointer on string to 1600KC point.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 (grid) of 6SA7. Low side to chassis.	455KC	BC	1600KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF.	High side to ext. ant. lead. Low side to ext. ground lead.	1600KC	"	"	"	A5,A6, A7.	Adjust for maximum output in order given.
200 MMF.	"	1400KC	"	Tune for maximum output.	"	A8,A9.	Adjust slugs for maximum output. Recheck A5,A6,A7, at 1600KC.
400 ohms	"	9.6MC	31 meter	9.6MC	"	A10,A11 A12.	Adjust for maximum output in order given.
400 ohms	"	6.1MC	49 "	6.1MC	"	A13,A14 A15.	"
400 ohms	"	11.8MC	25 "	11.8MC	"	A16,A17 A18.	"
400 ohms	"	15.2MC	19 "	15.2MC	"	A19,A20 A21.	"

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: BELMONT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Inverter	6J5GT	6J5GT	6Q	
6	Pwr. Output	6K6GT	6K6GT	7S	
7	Pwr. Output	6K6GT	6K6GT	7S	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BELMONT PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	15	450	119109	FP390	DY-3x15-450	EL-344	AEF222J	UP6CJ47	■ Filter
B	15	450							▲ "
C	10	350							"
10	.02	600	C-8J-11321	TP412	S-6-02	TC-12	684-02	DT6S2	Line Bypass
11	.02	600	C-8J-11321	TP412	S-6-02	TC-12	684-02	DT6S2	" "
12	.004	600	C-8D-10788	TP407	S-6-004	TC-24	684-002	DT6D2	6K6 Plate Bypass
13	.05	400	C-8D-10813	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
14	.05	200	C-8D-10770	TP426	S-4-05	TC-15	484-05	DT4S5	" "
15	.02	400	C-8D-10774	TP423	S-4-02	TC-12	484-02	DT4S2	" "
16	.005	600	C-8D-10935	TP408	S-6-005	TC-25	684-005	DT6D5	Tone Compensation
17	.006	600	C-8D-10785	TP409	S-6-006	TC-26	684-006	DT6D6	Audio Coupling
18	.03	200	C-8D-10992	TP424	S-6-03	TC-13	484-03	DT4S3	Tone Compensation
19	.02	400	C-8D-10774	TP423	S-4-02	TC-12	484-02	DT4S2	AVC Filter
20	.1	200	C-8D-10771	TP428	S-4-1	TC-1	484-.1	DT4P1	1F Cath. Bypass
21	.1	200	C-8D-10771	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Cath. Bypass
22	.1	400	C-8D-10760	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
23	.1	400	C-8D-10760	TP428	S-4-1	TC-1	484-.1	DT4P1	" " " "
24	220	500	C-8F3-10	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Audio Plate Bypass
25A	50		129165B						Diode Filter
B	50								" "
26	470	500	C-8F3-12	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	Ant. Coupling
27	2000	500	B-8F-10767	MC457	MW.5-22	1FM-22	1467-002	1W5D2	RF Coupling
28	470	500	C-8F3-121	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	" "
29	10	500	B-8F5-101	MCB215	MOS.5-41	MS-41	1469-00001	5R5Q1	" "
30	470	500	C-8F3-121	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	" "
31	47	500	B-8F3-109	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
32	200	500	B-8F-10763	MCB237	MOS.5-32	MS-32	1469-0002	5R5T2	Fixed Trimmer

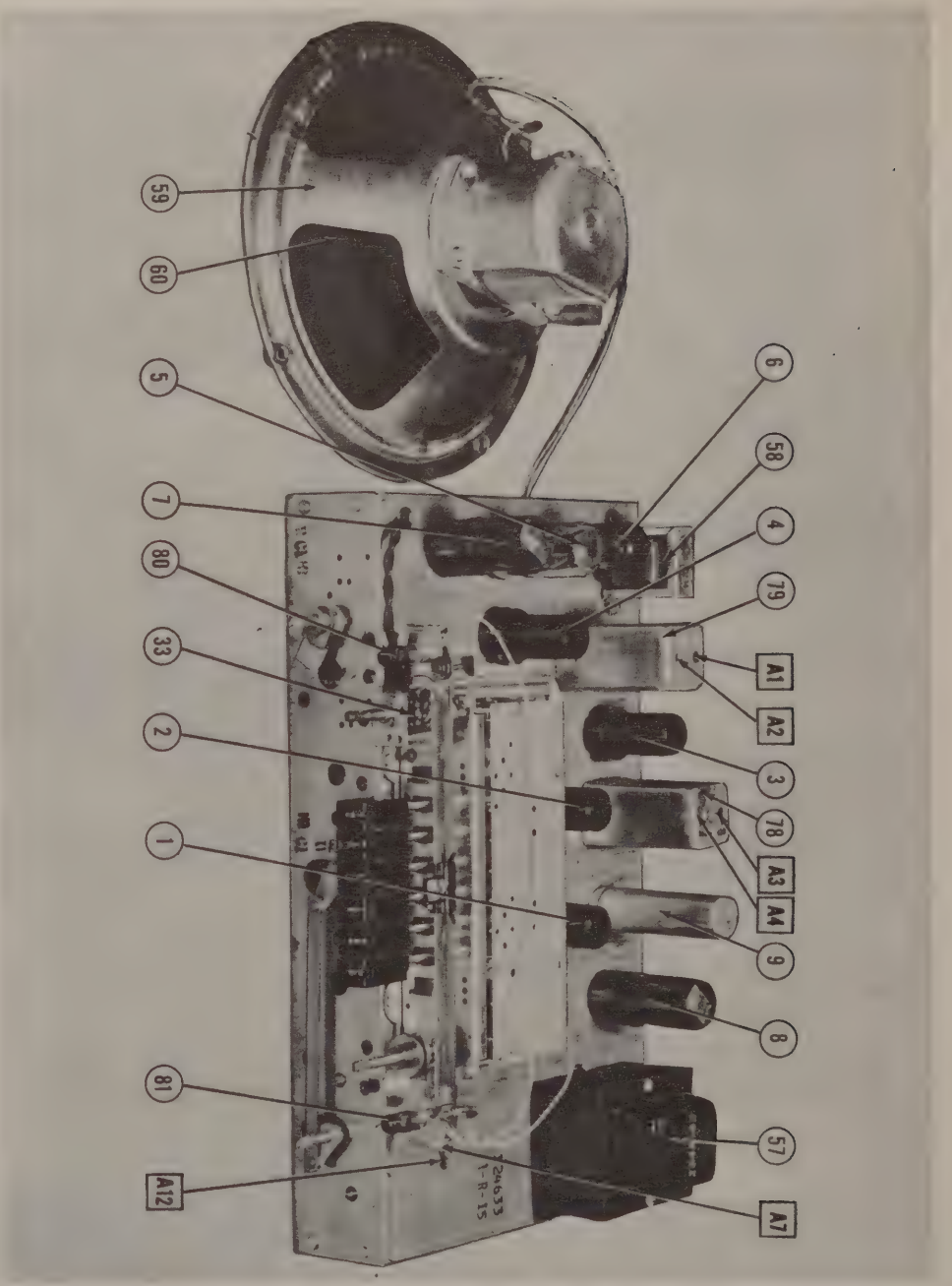
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BELMONT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
33A	500KΩ	1	A-10A-10586	TM233	D18-133X	AT-88	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 33A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
34A	1 Meg.	1	125180	MK402	D13-137	AM-63-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 34A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BELMONT PART No.	IRC PART No.	IDENTIFICATION CODES
35	22KΩ	½	C-9B1-21	BTS-22K	Red-Red-Or. Loop Loading
36	22KΩ	½	C-9B1-21	BTS-22K	Red-Red-Or. External Ant. Loading
37	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
38	270Ω	½	C-9B1-55	BW-½-270	Red-Vi.-Br. RF Cathode
39	4700Ω	½	C-9B1-70	BTS-4700	Yl.-Vi.-Red RF Plate Load
40	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
41	27KΩ	½	C-9B1-79	BTS-27K	Red-Yl.-Or. Osc. Grid
42	47Ω	½	C-9B1-46	BW-½-47	Yl.-Vi.-Blk. Parasitic Suppressor
43	560Ω	½	C-9B1-59	BTS-560	Grn.-Blue-Br. IF Cathode

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	BELMONT PART No.	IRC PART No.	
44	12500Ω	½	10682	AB-12500	IF Screen Dropping
45	47KΩ	½	C-9B1-23	BTS-47K	Yl.-Vi.-Or. IF Filter
46	3.3 Meg.	½	C-9B1-34	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
47	4.7 Meg.	½	C-9B1-35	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
48	220KΩ	½	C-9B1-27	BTS-220K	Red-Red-Yl. 1st AF Plate Load
49	15KΩ	½	C-9B1-20	BTS-15K	Br.-Grn.-Or. Tone Compensation
50	100KΩ	½	C-9B1-66	BTS-100K	Br.-Blk.-Yl. Inverter Plate Load
51	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Br.-Blk.-Grn. Inverter Grid
52	100KΩ	½	C-9B1-86	BTS-100K	Br.-Blk.-Yl. Inverter Cathode Load
53	47ΩΩ	½	C-9B1-70	BTS-4700	Yl.-Vi.-Red Inverter Cathode Bias
54	470KΩ	½	C-9B1-29	BTS-470K	Yl.-Vi.-Yl. Output Grid
55	470KΩ	½	C-9B1-29	BTS-470K	Yl.-Vi.-Yl. Output Grid
56	330Ω	1	C-9B2-56	BW-1-330	Or.-Or.-Br. Output Cathodes

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	BELMONT PART No.	STANCOR PART No.	THORDARSON PART No.	
57	117VAC @ .610A	630VCT @ .066A	5.1VAC @ 1.8A	6.5VAC @ 2.6A	104202B	P-6120*	T-22R20*	*Use mounting slots provided on chassis.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BELMONT PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
58	14400Ω	4Ω	670Ω	.4Ω	B-12C-10234	A-3856	T-22S56†		†Drill one new mounting hole.

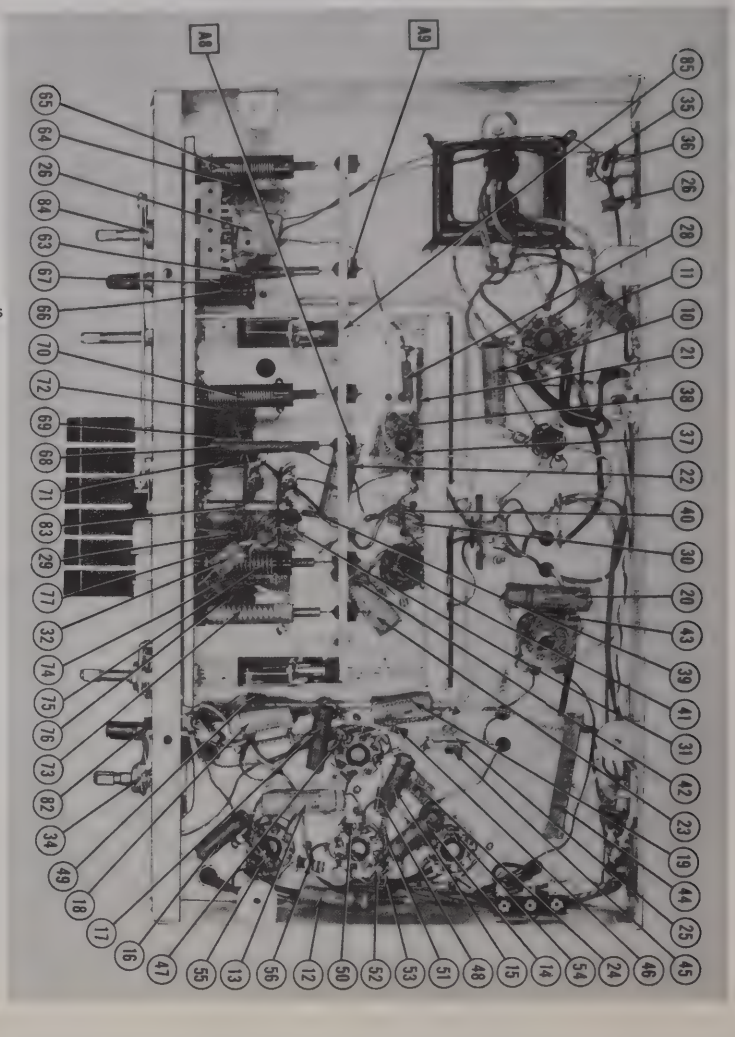
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	BELMONT PART No.	JENSEN PART No.		
59	450Ω	4Ω	B-18B-10617			
	CONE DIA.	VC DIA.				
60	9-3/4"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	BELMONT PART No.	MEISSNER PART No.	
61	BC Loop Ant.	0Ω				
62	LoopLoad Ch.	0Ω		A-16A-11113		
63	BC Ant.Coil		6.5Ω	111195‡		
64	6MC " "		.1Ω	111189		
65	9MC " "	.1Ω	0Ω	111190‡		
66	12MC" "		0Ω	111191		
67	15MC" "		0Ω	111192		
68	BC RF Coil		6Ω	10962‡		
69	6MC RF Coil		.1Ω	10958		
70	9MC RF Coil	1Ω	0Ω	10959‡		
71	12MC RF Coil		0Ω	10960		
72	15MC RF Coil		0Ω	10961		
73	BC Osc. Coil	.5Ω	6.5Ω	110161‡		
74	6MC " "		.1Ω	110156		
75	9MC " "		0Ω	110157‡		
76	12MC" "		0Ω	110158		
77	15MC" "		0Ω	110159		
78	Input IF	20Ω	20Ω	108177	16-6658	
79	Output IF	10Ω	9.5Ω	108176	16-6660	‡Items 63, 65, 68, 70, 73, 75 ganged together and slug tuned

CHASSIS—BOTTOM VIEW



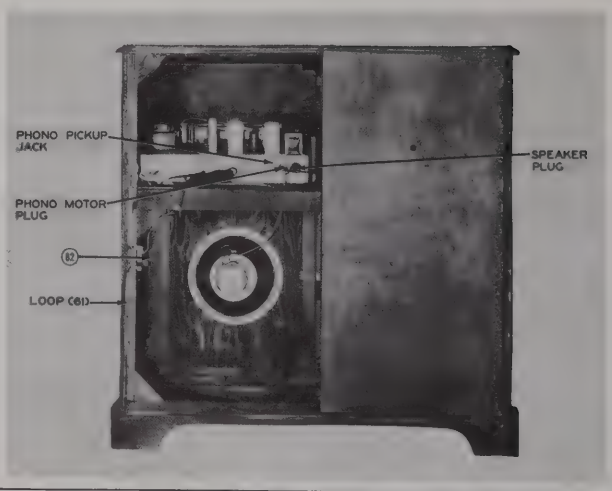
PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					BELMONT PART No.		
80	Bayonet	6-8	0.25	Blue	10794		Type 44
81	"	6-8	0.25	"	10794		" "

MISCELLANEOUS

ITEM No.	PART NAME	BELMONT PART No.	NOTES
82	Radio-Phono Sw.	Part of 125180	
83	Band Switch	B-20A-10964	Antenna Section
84	" "	B-20A-10965	Osc. & RF Section
85	Tuner Assby.		Removable Tuner Assby.
A5	Trimmer Cap.	124144	BC Osc. Adj. 12-27 MMF
A6	" "	A-8G-7205	BC RF Adj. 120-220 MMF
A7	Trimmer Cap. }	124143	BC Ant. Adj. 67-123 MMF
A12	" "		9MC Ant. Adj. 95-175 MMF
A10	" "	124145	9MC Osc. Adj. 7-35 MMF.
A11	" "	A-8G-7206	9MC RF Adj. 60-110 MMF
	Dial Scale	B-6D-10984	
	" Pointer	B-2G-10588-1	
	Escutcheon	112985-14	Walnut Cabinet
	"	112985-41	Mahogany Cabinet
	Knob	A-5B-10893-14	Band SW or Radio-Phono, Walnut Cab.
	"	A-5B-10893-41	" " " " " Mahogany "
	"	128523-14	Tuning or Volume, Walnut Cab.
	"	128523-41	" " " " Mahogany "
	Band Switch Link	A-2L-11293	



PUSH BUTTON ADJUSTMENTS

1. Turn receiver on and allow to warm up for at least five minutes. Turn band switch to the "BC" position.
2. Pull button to be set up out as far as it will come.
3. Very carefully tune in the desired station.
4. Push the button in as far as it will go.
5. Follow this procedure for each of the five remaining pushbuttons.

DISASSEMBLY INSTRUCTIONS

1. Remove the following push-on type knobs: Volume control, tuning control, radio-phono & tone control, band switch.
2. Remove screw from speaker plug.
3. Disconnect speaker plug from chassis.
4. Disconnect phono-motor plug from chassis.
5. Disconnect phono-pickup plug from chassis.
6. Disconnect loop antenna plug from chassis.
7. Remove four wood screws and washers from chassis board.
8. Remove four wood screws holding the plastic dial to the cabinet. Remove the plastic dial.
9. Remove the push-on type dial pointer.
10. Remove nut and lockwasher holding speaker to cabinet. Remove speaker.

NOTE: VOLT. & RES. READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

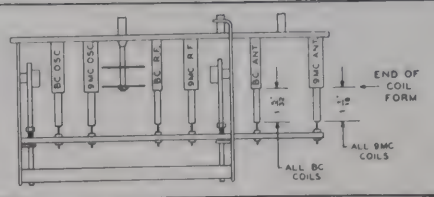
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V	0V	0V	-.05V DC	3V DC	107V DC	6.35VAC	288VDC
2	6SA7	0V	6.35VAC	288V DC	107V DC	-2V DC	0V	0V	-.05V DC
3	6SK7	0V	0V	0V	-.35VDC	4.5V DC	107V DC	6.35V AC	288VDC
4	6SQ7	0V	-.4V DC	0V	-.35VDC	-.27V DC	110 V DC	0V	6.35V AC
5	6J5GT	0V	6.35VAC	188V DC	288VDC	3.2V DC	88VDC	0V	92VDC
6	6K6GT	0V	6.35VAC	260VDC	288VDC	0V	0V	0V	21 VDC
7	6K6GT	0V	0V	260VDC	288VDC	0V	0V	6.35VAC	21 VDC
8	5Y3 GT	0V	310VDC	0V	315 VAC	0V	315 VAC	0V	310 VDC

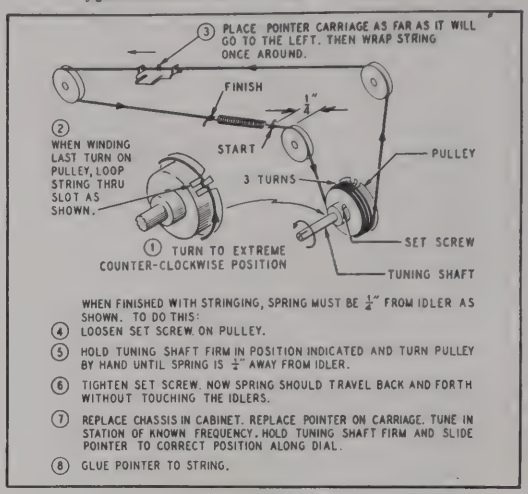
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6 SK7	0Ω	0Ω	0Ω	4 MEG	225Ω	192 KΩ	.1Ω	185KΩ
2	6 SA7	0Ω	.1Ω	180 KΩ	192 KΩ	25KΩ	.25Ω	0Ω	4 MEG
3	6 SK7	0Ω	0Ω	0Ω	3.1MEG	500Ω	192 KΩ	.1Ω	180 KΩ
4	6 SQ7	0Ω	5 MEG	0Ω	3.1MEG	470 KΩ	400 KΩ	0Ω	.1Ω
5	6 J5 GT	0Ω	.1Ω	280 KΩ	180 KΩ	900 KΩ	92 KΩ	0Ω	96KΩ
6	6 K6 GT	0Ω	.1Ω	180 KΩ	180 KΩ	370 KΩ	INF.	0Ω	310Ω
7	6 K6 GT	0Ω	0Ω	180 KΩ	180 KΩ	390 KΩ	INF.	.1Ω	310Ω
8	5 Y3 GT	INF	180 KΩ	INF	98Ω	INF	92Ω	INF	180 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

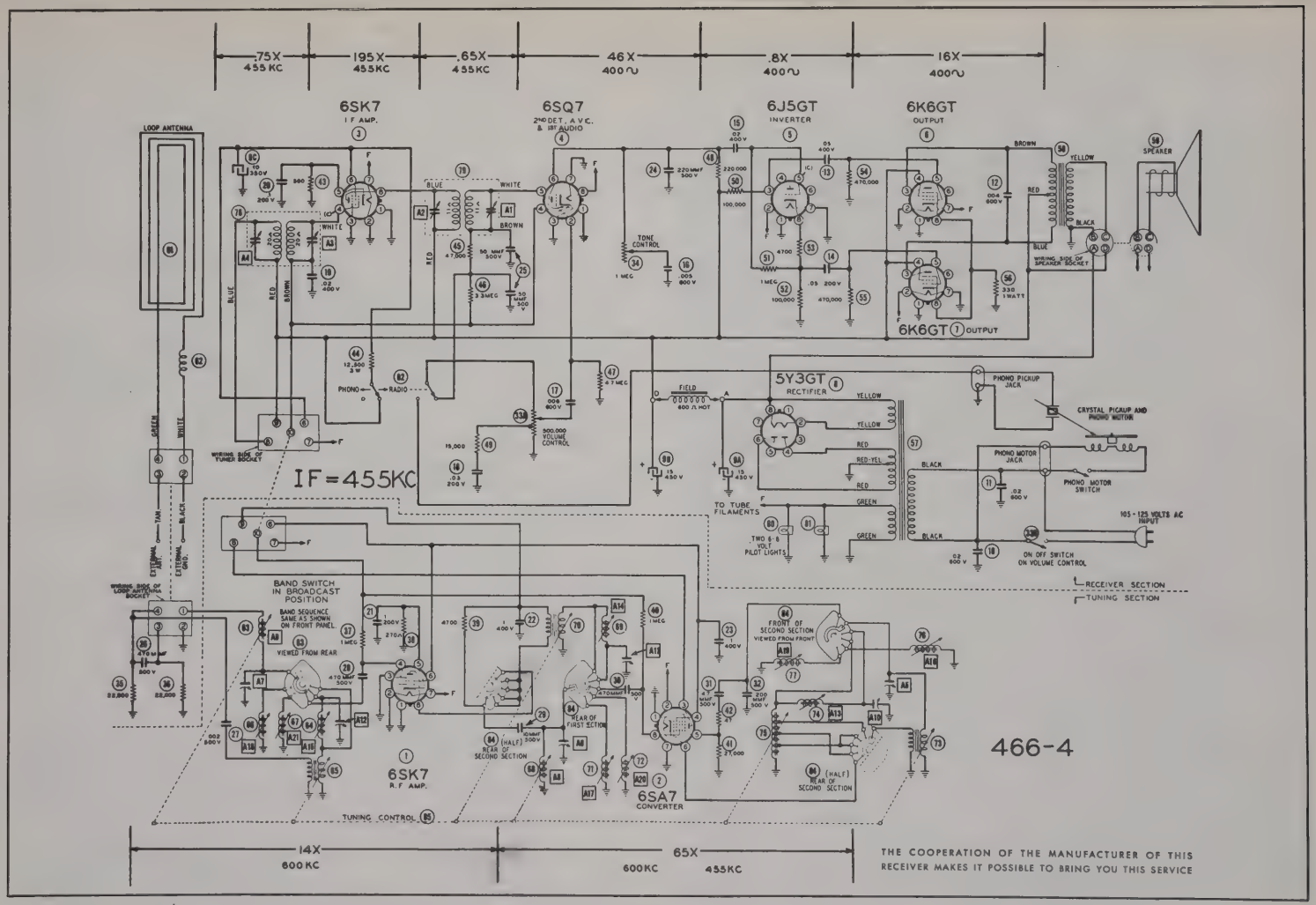



3 PLACE POINTER CARRIAGE AS FAR AS IT WILL GO TO THE LEFT. THEN WRAP STRING ONCE AROUND.
FINISH
1/4"
START
2 WHEN WINDING LAST TURN ON PULLEY, LOOP STRING THRU SLOT AS SHOWN.
3 TURNS
PULLEY
SET SCREW
1 TURN TO EXTREME COUNTER-CLOCKWISE POSITION
TUNING SHAFT

WHEN FINISHED WITH STRINGING, SPRING MUST BE 1/4" FROM IDLER AS SHOWN. TO DO THIS:

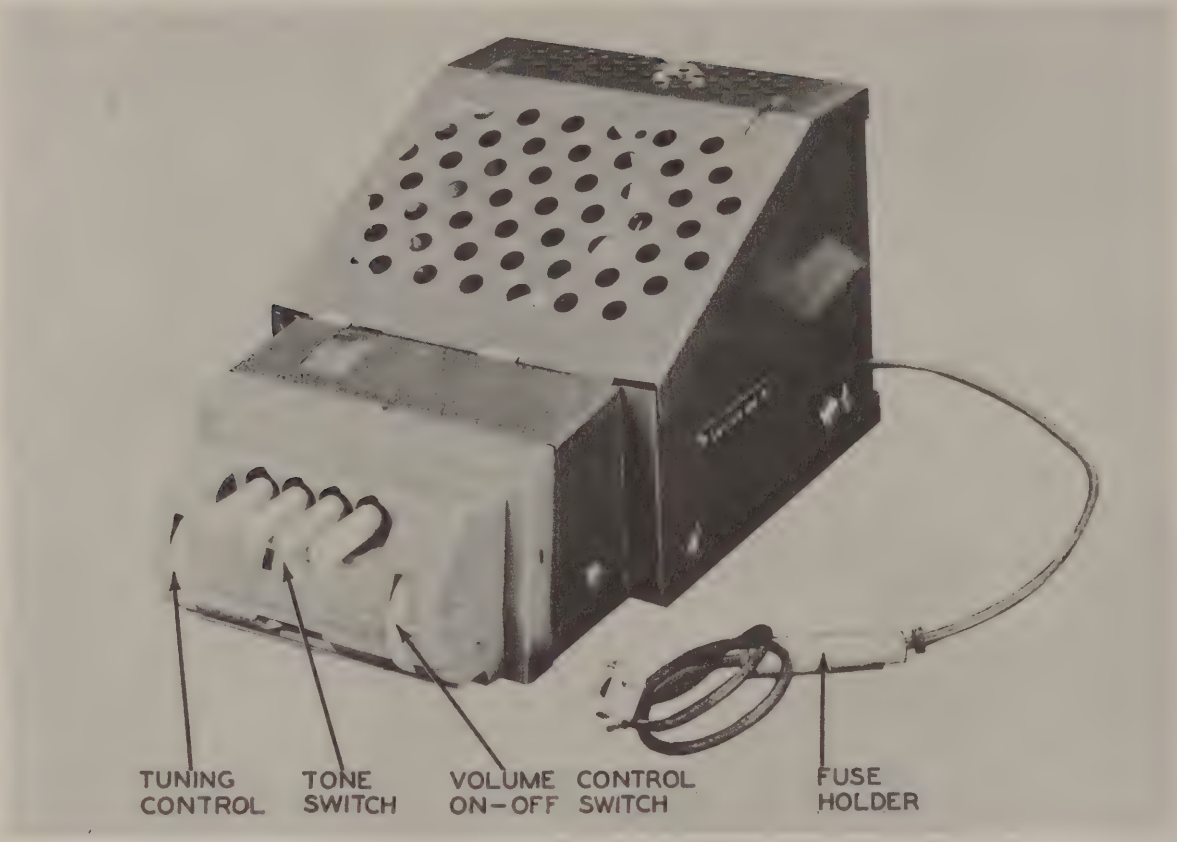
4. LOOSEN SET SCREW ON PULLEY.
5. HOLD TUNING SHAFT FIRM IN POSITION INDICATED AND TURN PULLEY BY HAND UNTIL SPRING IS 1/4" AWAY FROM IDLER.
6. TIGHTEN SET SCREW. NOW SPRING SHOULD TRAVEL BACK AND FORTH WITHOUT TOUCHING THE IDLERS.
7. REPLACE CHASSIS IN CABINET. REPLACE POINTER ON CARRIAGE. TUNE IN STATION OF KNOWN FREQUENCY. HOLD TUNING SHAFT FIRM AND SLIDE POINTER TO CORRECT POSITION ALONG DIAL.
8. GLUE POINTER TO STRING.

Replacement of Drive Cord



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



CHEVROLET
MODEL 985792

CHEVROLET
MODEL 985792

CHEVROLET MODEL 985792

TRADE NAME	Chevrolet Model 985792
MANUFACTURER	Chevrolet Motor Car Co., Div. of General Motors, Detroit, Michigan
TYPE SET	Battery Operated Superheterodyne Auto Receiver
TUBES (FIVE)	Types, 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6V6GT Power Output, 0Z4G Rectifier.
POWER SUPPLY	6.3 Volts DC
TUNING RANGE—BROADCAST	540-1610KC RATING 5.9 Amps. @ 6.3V DC

ALIGNMENT INSTRUCTIONS

Check calibration as shown in sketch. If incorrect hold dial shaft and turn dial to proper point. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 (grid) of 6SA7. Low side to chassis.	260KC	High freq.end (Slugs out of coils)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
.1 MFD.	"	1610KC	"	"	A5	" " " "
75 MMF.	High side to ant. terminal. Low side to chassis.	1400KC	Tune for maximum output.	"	A6,A7.	Adjust for maximum output. It is very important that a 75 MMF mica condenser be used as dummy to insure proper tracking. Adjust for maximum output.
After receiver is reinstalled in car, tune in weak station around 1400KC and adjust A6 for maximum output.						

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SA7GT	6SA7GT	8AD	
2	IF Amp.	6SK7GT	6SK7GT	8N	
3	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
4	Power Output	6V6GT	6V6GT	7AC	
5	Rectifier	0Z4G	0Z4G	4R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CHEVROLET PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	10	350	41473	FP328	DY-2x15-350/20-25	EL-153	AF32K4A	UP4CJ5	■ Filter
B	15	300							▲ "
C	20	25							Cath. Bypass
7	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	6V6 Plate Bypass
8	.05	600		TP415	S-6-05	TC-15	684-05	DT6S5	Audio Coupling
9	.004	600		TP407	S-6-004	TC-24	684-004	DT6D4	Tone Compensation
10	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
11	.05	600		TP415	S-6-05	TC-15	684-05	DT6S5	IF Screen Bypass
12	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	RF Bypass Pwr. Supp.
13	.05	600		TP415	S-6-05	TC-15	684-05	DT6S5	AVC Filter
14	.007	400		TP445	S-4-01	TC-11	484-01	DT4S1	RF Coupling
15	.004	1600		OW343	XTIMS20-.005	TR-24	1684-004	MD16D6	Buffer
16	.5	400		TP431	S-4-5	TC-5	484-.5	DT4P5	Hash Filter
17	.5	400		TP431	S-4-5	TC-5	484-.5	DT4P5	" "
18	50	500		MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
19	165								Fixed Trimmer Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20	500KΩ	1	1216012				Volume Control

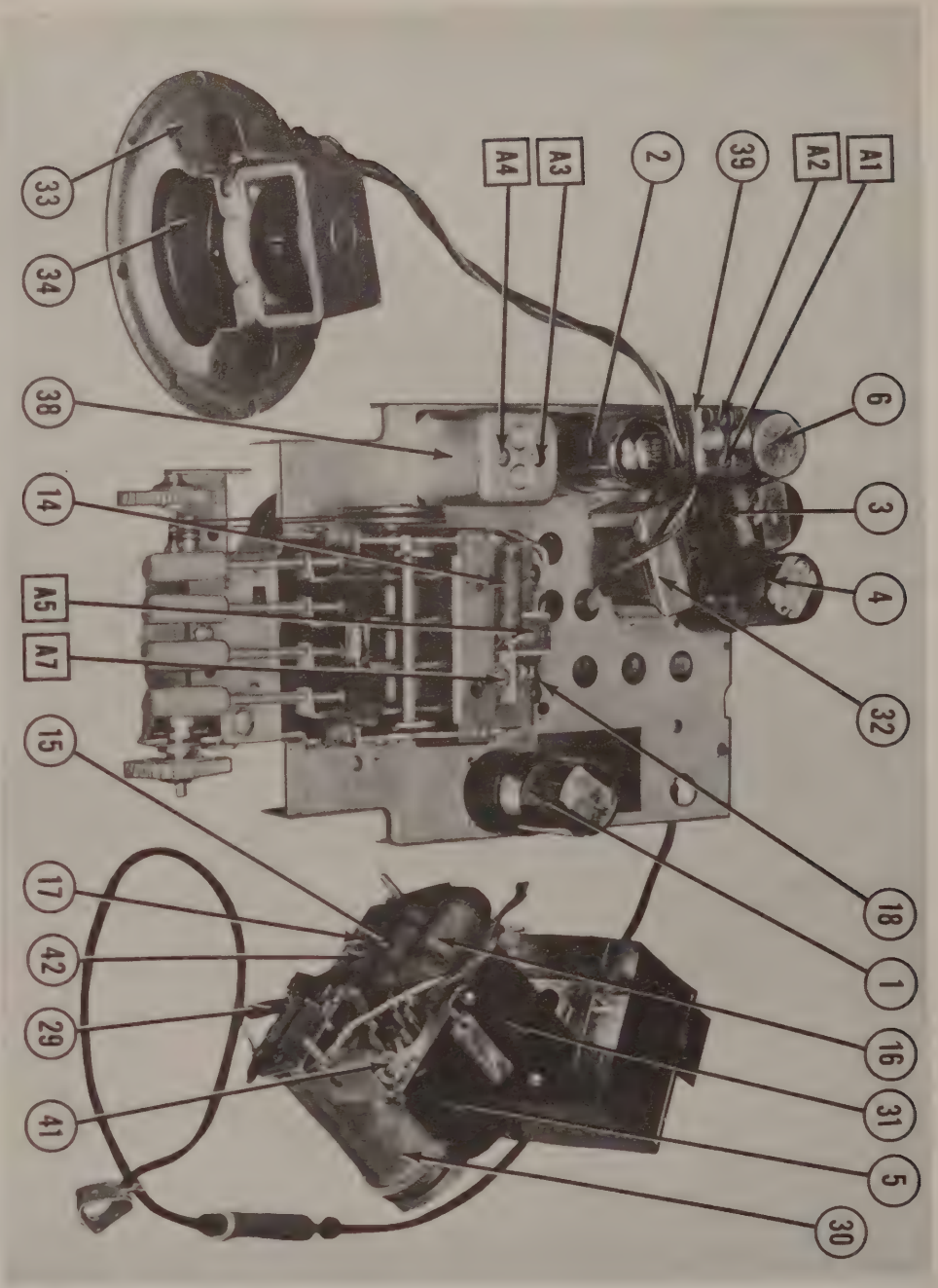
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	IDENTIFICATION CODES
21	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
22	33KΩ	1		BTA-33K	Or.-Or.-Or. IF Screen Dropping
23	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
24	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue 1st AF Grid
25	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
26	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Output Grid
27	270Ω	1		BW-1-270	Red-Vi.-Br. Output Cathode
28	2700Ω	1		BTA-2700	Red-Vi.-Red Filter
29	150	1		BW-1-150	Br.-Grn.-Br. Hash Suppression

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: CHEVROLET PART No.	MALLORY PART No.	RADIART PART No.	INSTALLATION NOTES
30	Interrupter	6.3V	115∿	1215909	859	5301	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	CHEVROLET PART No.	STANCOR PART No.	THORDARSON PART No.	
31	5.5VDC @ 4A	540VCT @ .046A			1216011		T-22R02	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CHEVROLET PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
32	5800Ω	3.3Ω	775Ω	.7Ω	1216010	A-3877	T-22846		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CHEVROLET PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.		ST-428		
33	4.1Ω	3.3Ω	1216013	Mod. H5-S		
	CONE DIA.	VC DIA.				
34	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CHEVROLET PART No.	MEISSNER PART No.	
35	Preselector Coil		16Ω			
36	Det. Coil		16Ω			
37	Osc. Coil	.2Ω	5.5Ω			
38	Input IF	64Ω	65Ω			
39	Output IF	67Ω				
40	Fuse RF Ch.	0Ω				
41	B+ RF Choke	0Ω				
42	Vib. RF Ch.	0Ω				

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CHEVROLET PART No.		
43	Bayonet	6-8	.2	White			Type 51

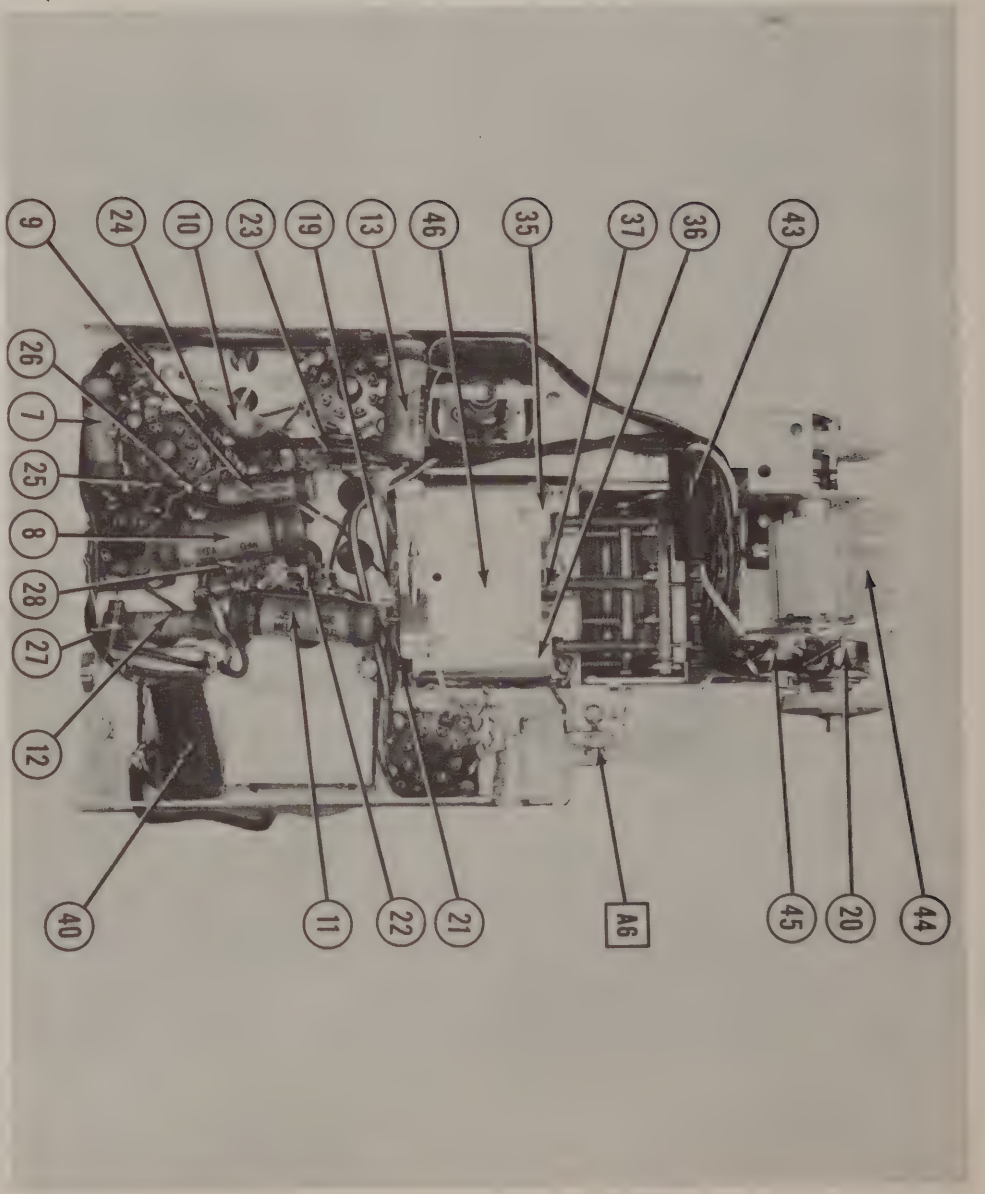
MISCELLANEOUS

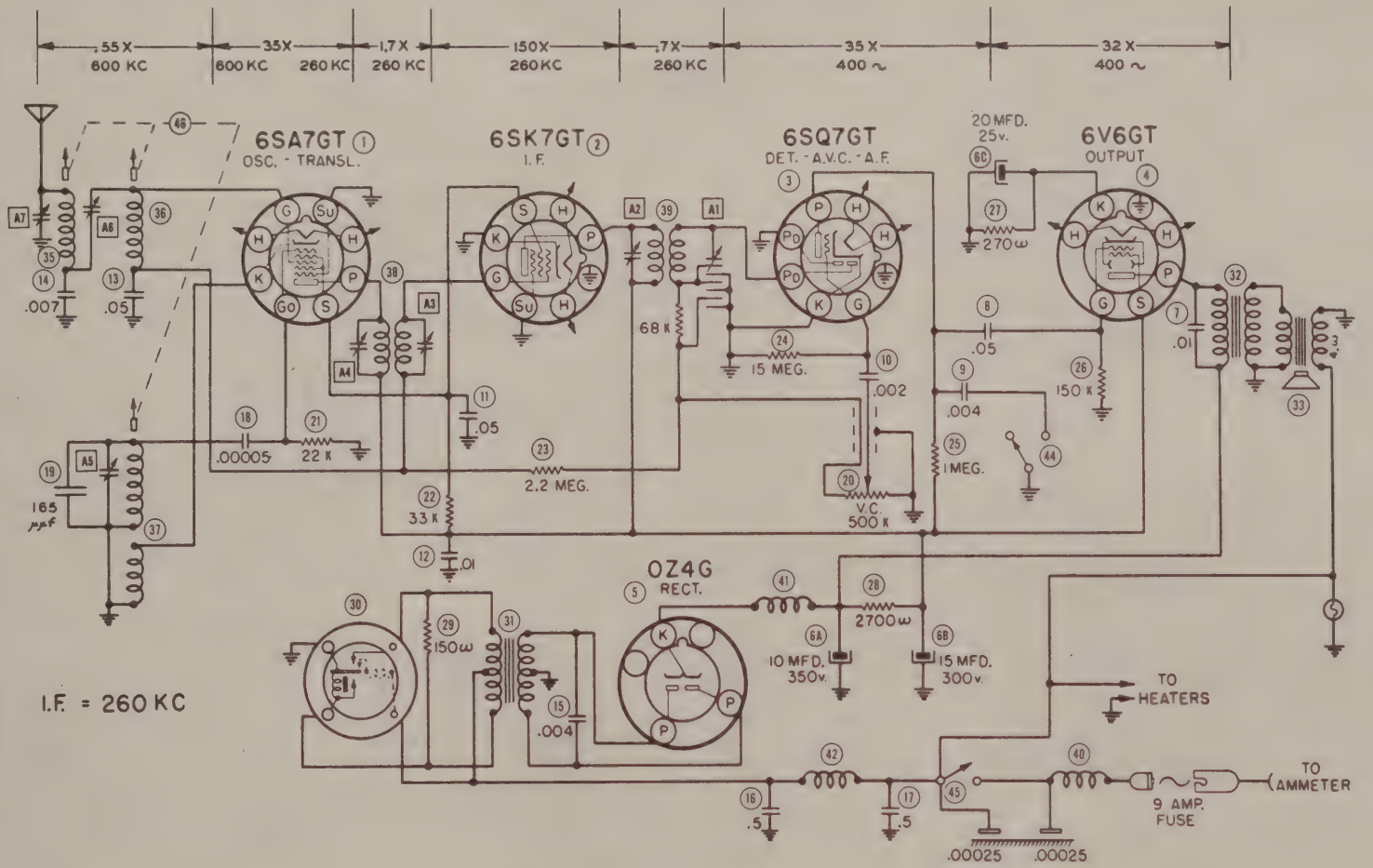
ITEM No.	PART NAME	CHEVROLET PART No.	NOTES
44	Tone Switch		
45	On-Off Switch		
46	Tuning Assby.	1216034	

PUSH BUTTON ADJUSTMENTS

1. Turn on receiver for ten minutes or more.
2. Loosen the four push buttons by turning each button counter-clockwise about one-half turn.
3. Tune in the first desired station manually and press in the first push button as far as it will go.
4. Holding the button all the way in, tighten it gently. Then release and tighten securely.
5. Proceed in the same manner for the remaining stations.
6. After all of the buttons have been adjusted, recheck the setting. Push each button and see if the station may be tuned in more accurately with the Manual Station Selector. If so, loosen button and reset it.
7. A station setting may be changed at any time by loosening the push button, tuning in the new station and re-setting the button.

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

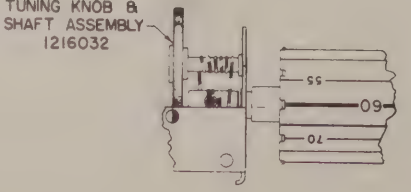
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7GT	0V.	6 V.DC	207 V.DC	47 V.DC	-.6 V.DC	0V.	0V.	-5 V.DC
2	6SK7GT	0V.	0V.	0V.	-5 V.DC	0V.	47 V.DC	6 V.DC	207 V.DC
3	6SQ7GT	0V.	-.6V.DC	0V.	-.4 V.DC	0V.	73 V.DC	0V.	6 V.DC
4	6V6GT	0V.	0V.	210 V.DC	207 V.DC	0V.	0V.	6 V.DC	10 V.DC
5	0Z4	0V.		270 VAC		270 VAC	6 V.DC	0V.	235 V.DC

RESISTANCE READINGS

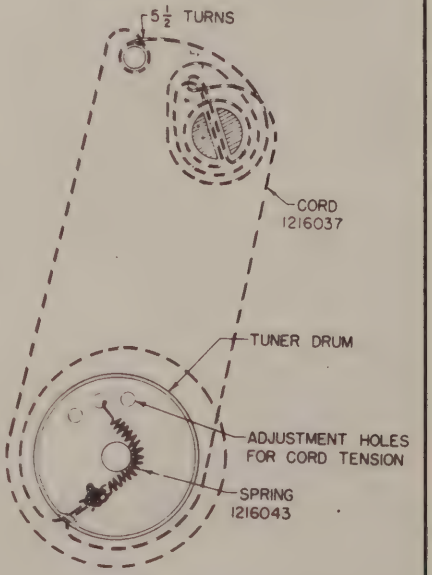
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7GT	0 Ω	.5 Ω	113 K Ω	146 K Ω	22 K Ω	.25 Ω	0 Ω	2.8 MEG
2	6SK7GT	0 Ω	0 Ω	0 Ω	2.8 MEG	0 Ω	146 K Ω	.5 Ω	113 K Ω
3	6SQ7GT	0 Ω	10 MEG	0 Ω	560 K Ω	0 Ω	1.1 MEG	0 Ω	.5 Ω
4	6V6GT	0 Ω	0 Ω	110 K Ω	113 K Ω	155 K Ω	INF	.5 Ω	250 Ω
5	0Z4	0 Ω		380 Ω		340 Ω	.5 Ω	0 Ω	110 K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

466-5



TO RECALIBRATE: AFTER REPLACING DRIVE STRING, TURN COIL CORES FULLY IN, THEN HOLD DIAL SHAFT STATIONARY WITH PLIERS, AND REVOLVE DIAL WITH FINGERS UNTIL THE 60 CALIBRATION LINE IS IN RELATION SHOWN TO BRACKET.



DIAL CORD DRIVE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1.- DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

CLARION
MODEL C-103

CLARION
MODEL C-103

CLARION MODEL C103

TRADE NAME	Clarion Model C103
MANUFACTURER	Warwick Mfg. Corp., 4640 W. Harrison St., Chicago 44, Ill.
TYPE SET	AC Operated Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6K6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	117 Volt AC
TUNING RANGE—BROADCAST	535-1725KC RATING .47 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the first mark from left end of dial plate. Place coupling link on loop in correct position for external antenna operation while aligning receiver. Volume control in maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 6SA7. Low side to chassis.	455KC	High freq.end of dial.(Variable fully open).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF.	High side to ant. terminal on loop. Low side to grnd. terminal.	1725KC	"	"	A5	" " " "
"	"	1500KC	Tune for maximum output.	"	A6,A7.	Adjust for maximum output in order given.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CLARION PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7GT	6SA7GT	8AD	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CLARION PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	16	450	A18-274	ST597	DH-16-450	UT-16	PRS450-16	BR1645	Filter
8	16	450	A18-279	ST597	DH-16-450	UT-16	PRS450-16	BR1645	"
9	.005	600	A16-153	TP408	S-6-005	TC-25	684-005	DT6D5	6K6 Plate Bypass
10	.01	400	A16-156	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	400	A16-156	TP421	S-4-01	TC-11	484-01	DT4S1	Tone Compensation
12	.05	400	A16-158	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Plate Decoup.
13	.01	400	A16-156	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
14	.05	200	A16-152	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
15	.05	400	A16-158	TP426	S-4-05	TC-15	484-05	DT4S5	IF Screen Bypass
16	.05	200	A16-152	TP426	S-4-05	TC-15	484-05	DT4S5	IF Cath. Bypass
17	.05	400	A16-158	TP426	S-4-05	TC-15	484-05	DT4S5	RF Screen Bypass
18	.05	200	A16-152	TP426	S-4-05	TC-15	484-05	DT4S5	RF Cath. Bypass
19	.05	400	A16-158	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
20	.05	200	A16-152	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
21	250	500	A15-176	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
22	50	500	A15-175	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
23	50	500	A15-175	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	RF Trans. Fixed Tuned
24	200	500		MC237	M0.5-32	1FM-32	1468-0002	5W5T2	Ant. Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CLARION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1	A24-169	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 25A per instructions
26A	3 Meg.	1	A26-123	UM165	D13-140	AM-67-Z	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 26A per instructions

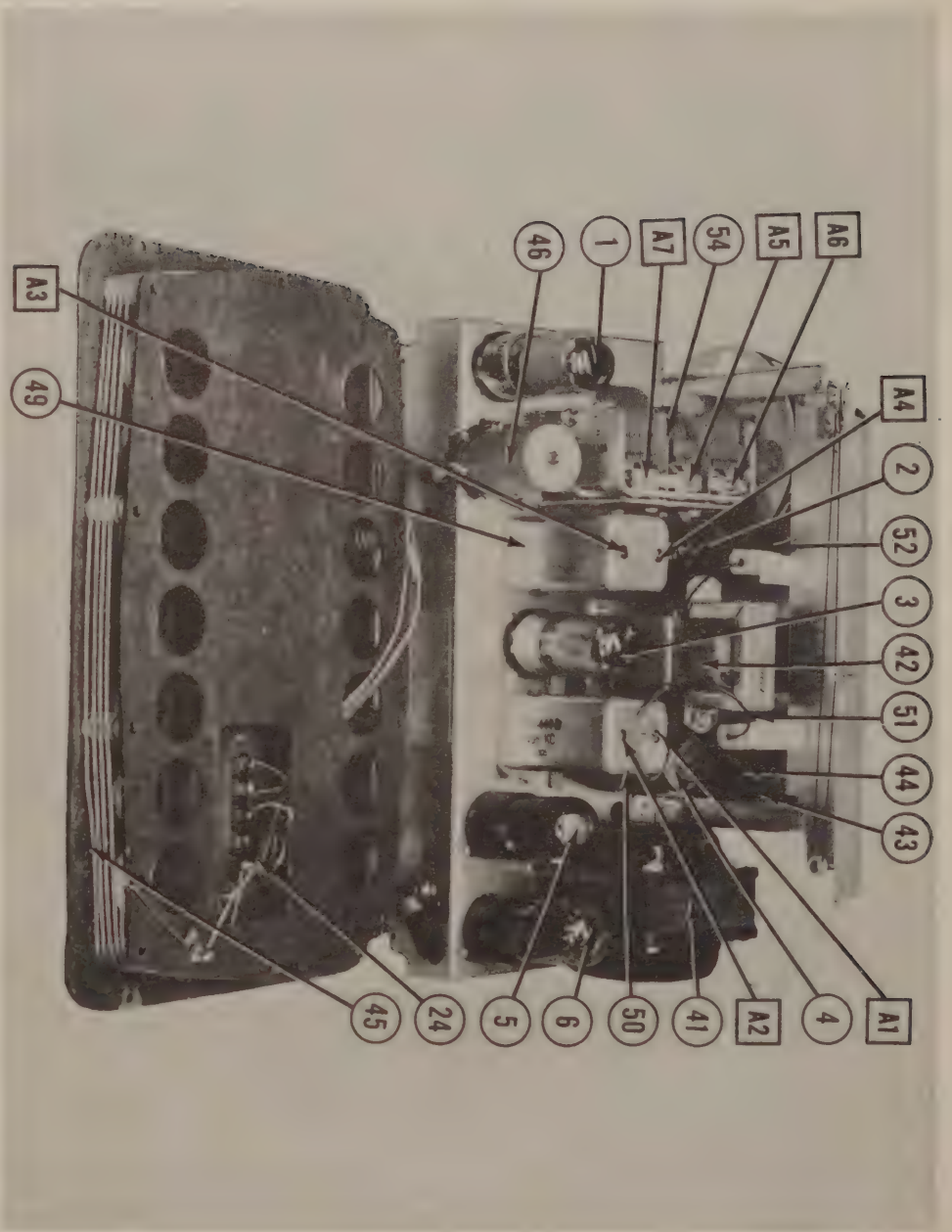
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CLARION PART No.	IRC PART No.	IDENTIFICATION CODES
27	220KΩ	1/3	A60-667	BTS-220K	Red-Red-Yl. AVC Network
28	100KΩ	1/2	A60-671	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
29	27KΩ	1	A60-692	BTA-27K	Red-Vi.-Or. Mixer Screen Dropping
30	150Ω	1/3	A60-686	BW-½-150	Br.-Grn.-Br. RF Cathode
31	22KΩ	1/3	A60-659	BTS-22K	Red-Red-Or. Osc. Grid
32	1000Ω	1/3	A60-675	BTS-1000	Br.-Blk.-Red IF Cathode
33	100KΩ	1/2	A60-671	BTS-100K	Br.-Blk.-Yl. IF Screen Dropping
34	10 Meg.	1/3	A60-663	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
35	220KΩ	1/3	A60-667	BTS-220K	Red-Red-Yl. 1st AF Plate Load
36	200KΩ	1/3	A60-667	BTS-220K	Red-Blk.-Yl. 1st AF Plate Filter
37	500KΩ	1/2	A60-662	BTS-470K	Grn.-Blk.-Yl. Output Grid
38	500Ω	1	A60-701	BTA-470	Grn.-Blk.-Br. Output Cathode
39	82KΩ	1	A60-700	BTA-82K	Gray-Red-Or. Bleeder
40	1000Ω	2	A60-669	BT-2-1000	Br.-Blk.-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CLARION PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTE
41	117V AC @ .47A	590V CT @ .059A	4.9V AC @ 1.8A	6.2V AC @ 1.88A	C80-223	P-6119	T-13R20	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CLARION PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
42	7300Ω	3.35Ω	450Ω	.62Ω	Part of S84-49	A-3878*	T-14S81*		*Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CLARION PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-109		
43	PM	3.35Ω	S84-49	Mod. P6-W		
	CONE DIA.	VC DIA.				
44	6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CLARION PART No.	MEISSNER PART No.	
45A	Loop Ant.	0Ω	0Ω	S84-50		For Mahogany Cabinet
B	" "	0Ω	0Ω	S84-52		" Ivory "
46	Ant. Coil	57Ω	4Ω	B10-451		
47	RF "	6Ω	2.5Ω	B10-452	14-1027	
48	Osc. "		5Ω	A10-446	14-1040	
49	Input IF	17.5Ω	26Ω	B10-412	16-6658	
50	Output IF	18Ω		B10-444	16-6660‡	

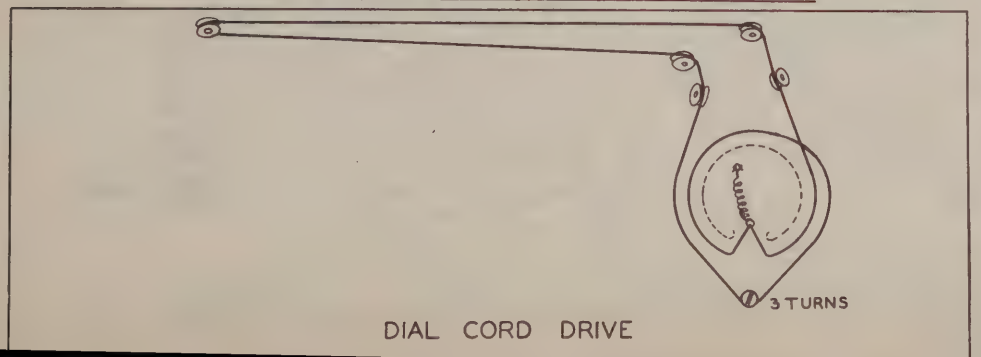
‡From low end of secondary winding, add 250 MMFD cap. to ground, 1 Meg. resistor to second diode, 50KΩ resistor to high side volume control.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CLARION PART No.		
51	Bayonet	6-8	0.25	Blue			Type 44
52	"	6-8	0.25	"			" "

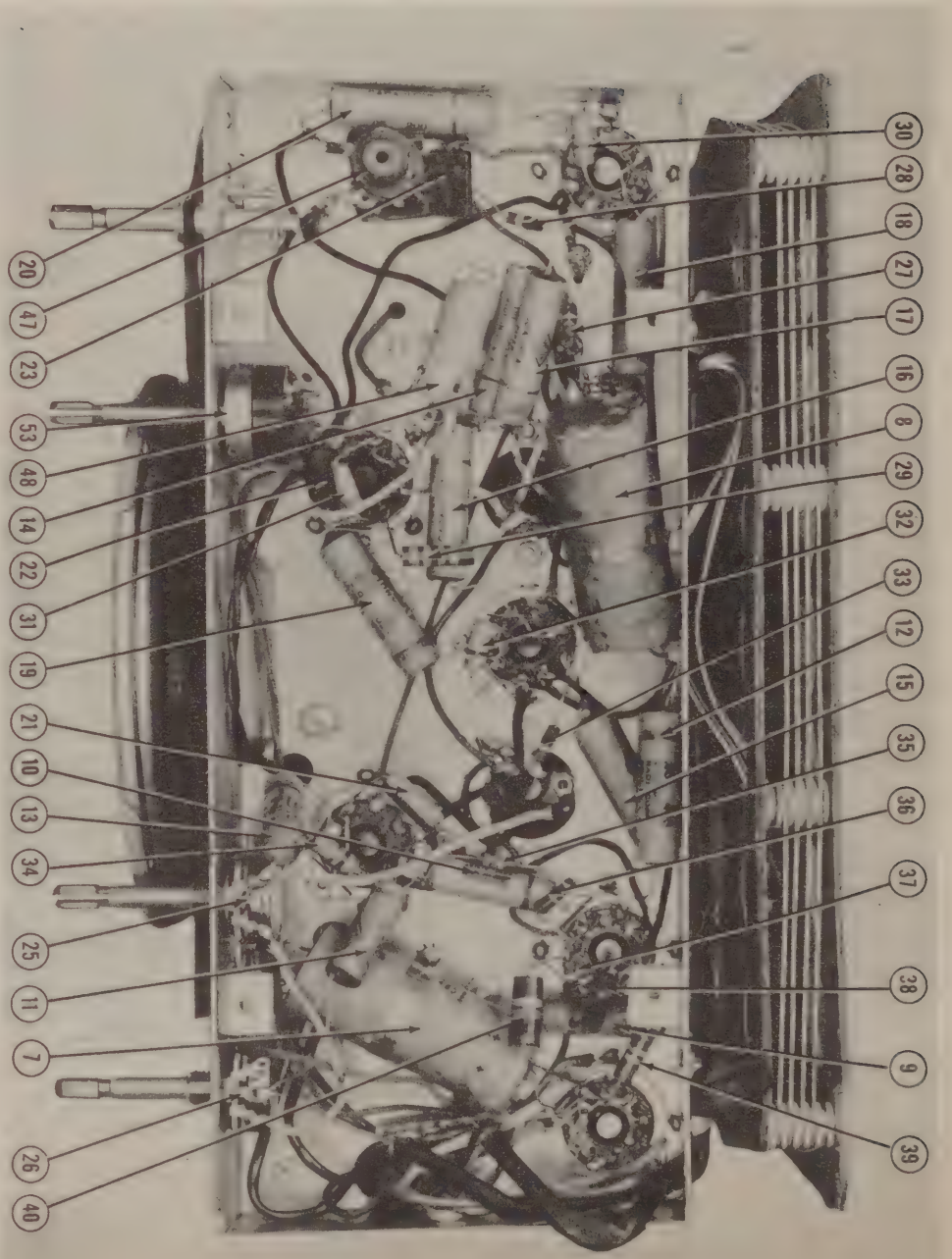
MISCELLANEOUS

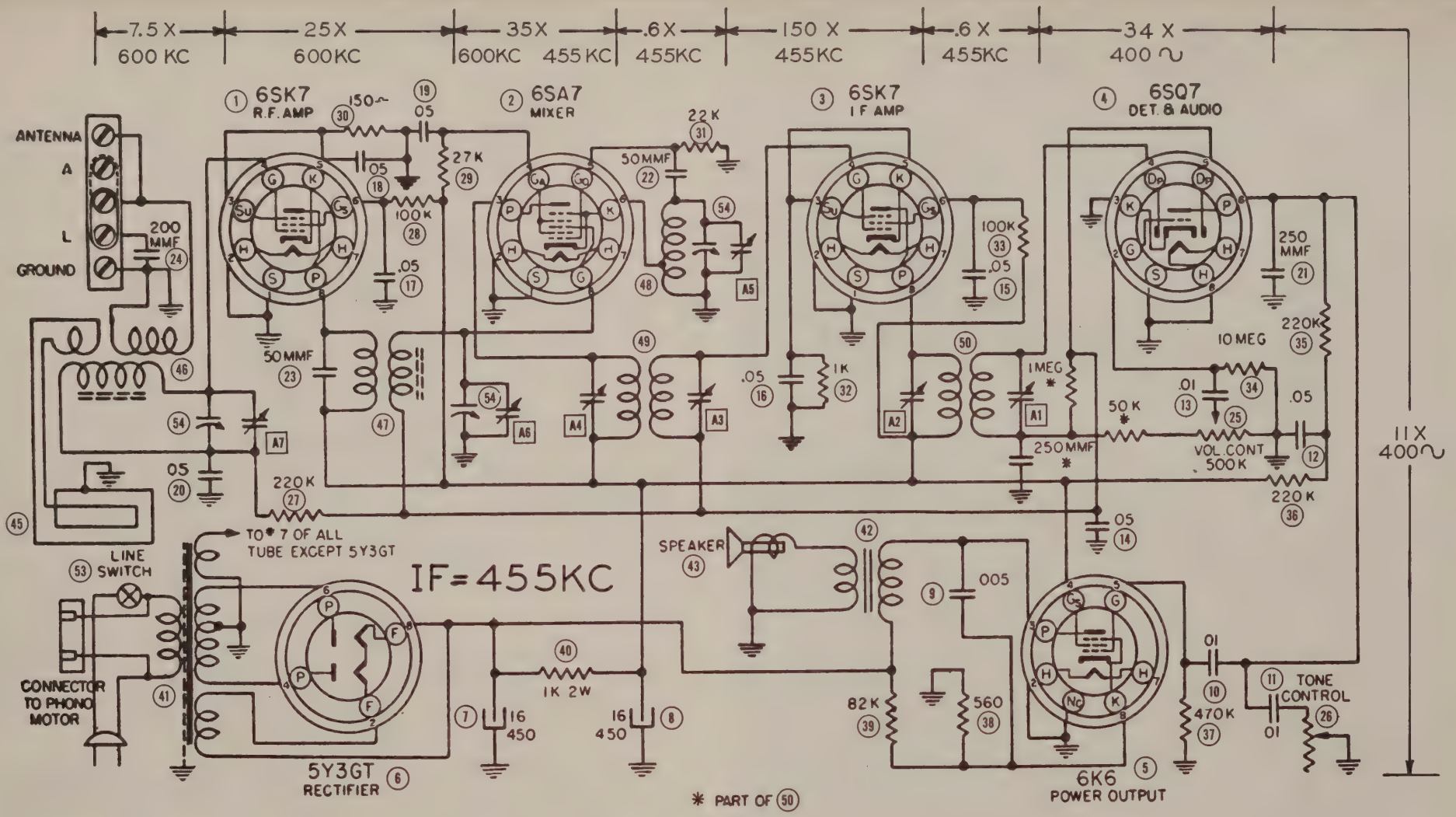
ITEM No.	PART NAME	CLARION PART No.	NOTES
53	Switch	A69-169	On-Off
54	Tuning Cap.	B19-186	3 Gang Variable Cap.
	Cabinet	D42-379	Bakelite (Mahogany)
	"	A42-401	" (Ivory)
	Dial Scale	C67-482	
	Knob	A52-187	Mahogany
	"	A52-191	Ivory
	Dial Pointer	A58-46	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V.	0V.	1.4V.DC	-.07V.DC	1.4V.DC	70V.DC	6.2V.AC	260V.DC
2	6SA7GT	0V.	0V.	260V.DC	85V.DC	- 4.1V.DC	0V.	6.2V.AC	-.35V.DC
3	6SK7GT	0V.	0V.	6.6V.DC	-.35V.DC	6.6V.DC	112V.DC	6.2V.AC	260V.DC
4	6SQ7GT	0V.	-.8V.DC	0V.	-.35V.DC	-.15V.DC	85V.DC	6.2V.AC	0V.
5	6K6GT	0V.	0V.	275V.DC	260V.DC	0V.	172V.DC	6.2V.AC	19V.DC
6	5Y3GT	288V.DC	288V.DC	0V.	285V.AC	0V.	285V.AC	0V.	288V.DC

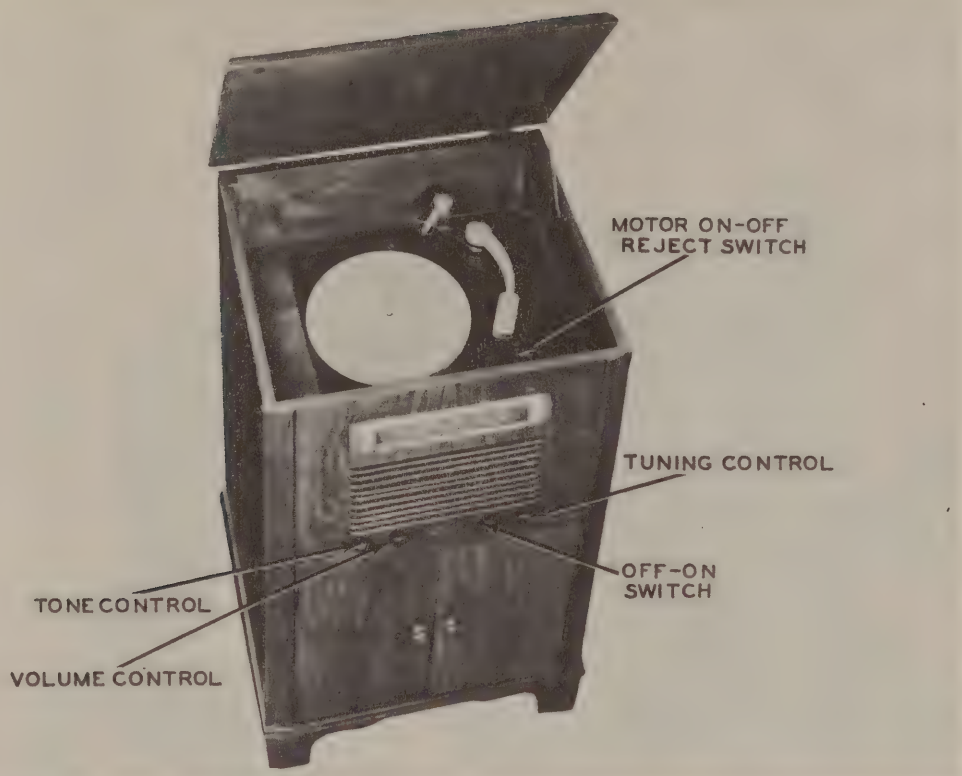
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0 Ω	0 Ω	150 Ω	1.6MEG	150 Ω	160KΩ	.1 Ω	56KΩ
2	6SA7GT	0 Ω	0 Ω	56KΩ	80KΩ	215KΩ	5Ω	.1 Ω	1.4 MEG
3	6SK7GT	0 Ω	0 Ω	900 Ω	1.4MEG	900 Ω	160KΩ	.1 Ω	56KΩ
4	6SQ7GT	0 Ω	11MEG	0 Ω	1.4MEG	520KΩ	500KΩ	.1 Ω	0 Ω
5	6K6GT	0 Ω	0 Ω	56KΩ	56KΩ	94KΩ	250KΩ	.1 Ω	490Ω
6	5Y3GT	56KΩ	56KΩ	INF	210Ω	INF	220Ω	INF	56KΩ

466-6

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



CLARION
MODEL C105-A

CLARION
MODEL C105-A

CLARION MODEL C105-A

TRADE NAME	Clarion Model C105-A
MANUFACTURER	Warwick Mfg. Corp., 4640 W. Harrison St., Chicago 44, Ill.
TYPE SET	AC Operated Combination Auto. Phono. - Superheterodyne Receiver, Self Contained Loop Antenna
TUBES (SIX)	Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6K6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	117 Volts AC
TUNING RANGE—BROADCAST	535-1725KC RATING .47 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the first mark from left end of dial plate. Place coupling link on loop in correct position for external antenna operation while aligning receiver. Volume control in maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 6SA7. Low side to chassis.	455KC	High freq. end of dial. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF.	High side to ant terminal on loop Low side to gmd. terminal.	1725KC	"	"	A5	" " " "
250 MMF.	"	1500KC	Tune for maximum output.	"	A6,A7.	Adjust for maximum output in order given.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CLARION PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7GT	6SA7GT	8AD	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Power Output	6K6GT	6K6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CLARION PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	16	450	A16-274	ST597	DH-16-450	UT-16	PRS450-16	BR1645	Filter
8	16	450	A16-279	ST597	DH-16-450	UT-16	PRS450-16	BR[illegible]	"
9	.005	600	A16-153	TP408	S-6-005	TC-25	684-005	[illegible]	6K6 Plate Bypass
10	.01	400	A16-156	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	400	A16-156	TP421	S-4-01	TC-11	484-01	DT4S1	Tone Compensation
12	.05	400	A16-158	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Plate Decoup.
13	.01	400	A16-156	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
14	.05	200	A16-152	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
15	.05	400	A16-158	TP426	S-4-05	TC-15	484-05	DT4S5	IF Screen Bypass
16	.05	200	A16-152	TP426	S-4-05	TC-15	484-05	DT4S5	IF Cath. Bypass
17	.05	400	A16-158	TP426	S-4-05	TC-15	484-05	DT4S5	RF Screen Bypass
18	.05	200	A16-152	TP426	S-4-05	TC-15	484-05	DT4S5	RF Cath. Bypass
19	.05	400	A16-158	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
20	.05	200	A16-152	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
21	250	500	A15-176	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
22	50	500	A15-175	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
23	50	500	A15-175	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	RF Trans. Fixed Tuned
24	200	500		MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Ant. Coupling
55	5								RF Coupling - Ceramic

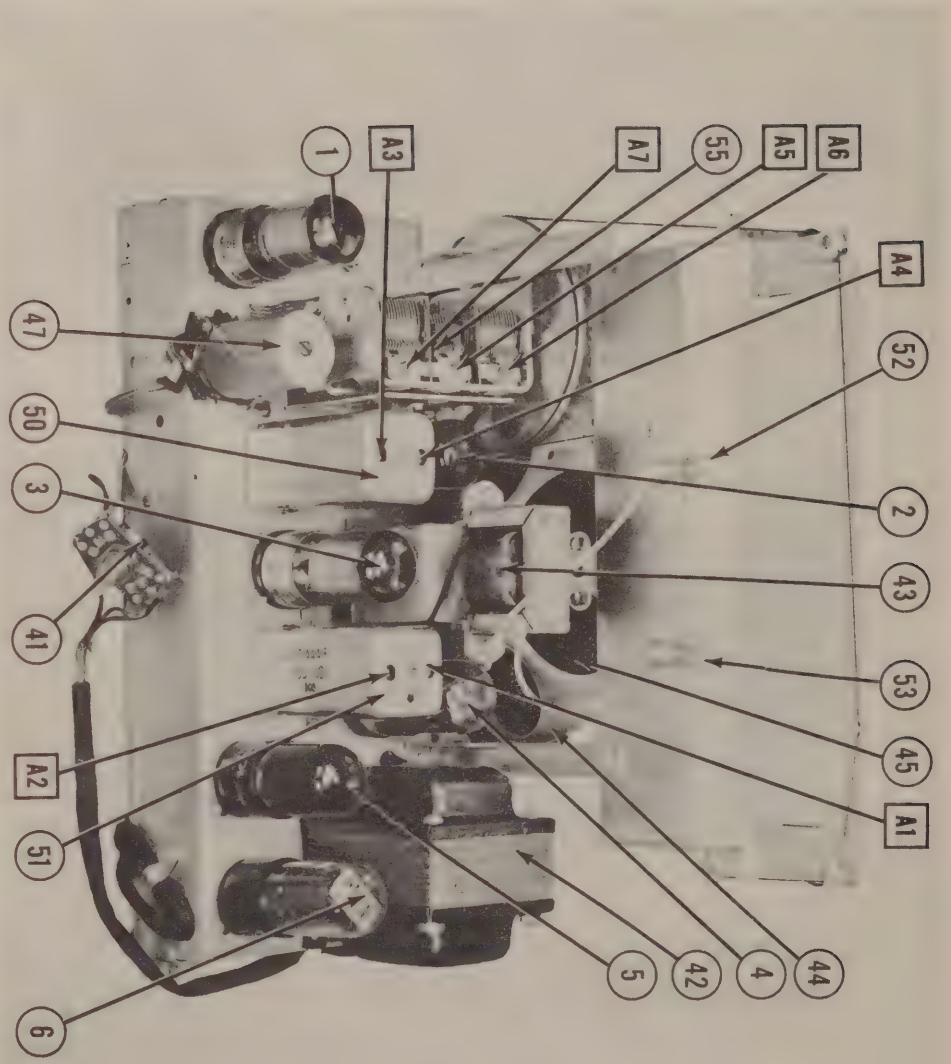
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CLARION PART No.	MALLORY PART No.	IRC PART No	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1	A24-[illegible]	MX401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 25A per instructions
26A	3 Meg.	1	A26-123	UM165	D13-140	AM-67-Z	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 26A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CLARION PART No.	IRC PART No.	IDENTIFICATION CODES
27	220KΩ	3	A60-667	BTS-220K	Red-Red-Yl. AVC Network
28	100KΩ	1/2	A60-671	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
29	27KΩ	1	A60-692	BTA-27K	Red-Vi.-Or. Mixer Screen Dropping
30	150Ω	1/3	A60-686	BW-½-150	Br.-Grn.-Br. RF Cathode
31	22KΩ	1/3	A60-659	BTS-22K	Red-Red-Or. Osc. Grid
32	1000Ω	1/3	A60-675	BTS-1000	Br.-Blk.-Red IF Cathode
33	100KΩ	1/2	A60-671	BTS-100K	Br.-Blk.-Yl. IF Screen Dropping
34	10 Meg.	1/3	A60-663	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
35	220KΩ	1/3	A60-667	BTS-220K	Red-Red-Yl. 1st AF Plate Load
36	200KΩ	1/3	A60-667	BTS-220K	Red-Blk.-Yl. 1st AF Plate Filter
37	500KΩ	1/2	A60-662	BTS-470K	Grn.-Blk.-Yl. Output Grid
38	500Ω	1	A60-701	BTA-470	Grn.-Blk.-Br. Output Cathode
39	82KΩ	1	A60-700	BTA-82K	Gray-Red-Or. Bleeder
40	1000Ω	2	A60-669	BT-2-1000	Br.-Blk.-Red Filter
56	200KΩ	1/2	A60-667	BTS-220K	Red-Blk.-Yl. Series Phono.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	CLARION PART No.	STANCOR PART No.	THORDARSON PART No.	
41	117V AC @ .47A	350V CT @ .08A	6.3V AC @ 1.0A	6.3V AC @ 1.0A	C80-2253	P-6119	T-13R82	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CLARION PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
42	3.6K	3.5Ω	45Ω	.6Ω	Part of B79-342	A-3870	T-2L2471		†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	CLARION PART No.	JENSEN PART No.		
43	FM	3.5Ω	B79-341 B79-342†	ST-112 Mod. P6-T		†Alternate speaker assembly
	CONE DIA.	VC DIA.				
44	6-1/16"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CLARION PART No.	MEISSNER PART No.	
45	Loop Ant.	0Ω	0Ω	S84-64		
46	Ant. Coil	57Ω	4Ω	B10-451		
47	RF Coil	68Ω	2.5Ω	B10-452	14-1027	
48	Osc. Coil		5Ω	A10-446	14-1040	
49	Input IF	17.5Ω	26Ω	B10-412	16-6658	
50	Output IF	18Ω		B10-444	16-6660*	

*From low end of secondary winding add a 250 MMFD cap. to ground, 1 Meg. resistor to second diode, a 50KΩ resistor to high end of volume control.

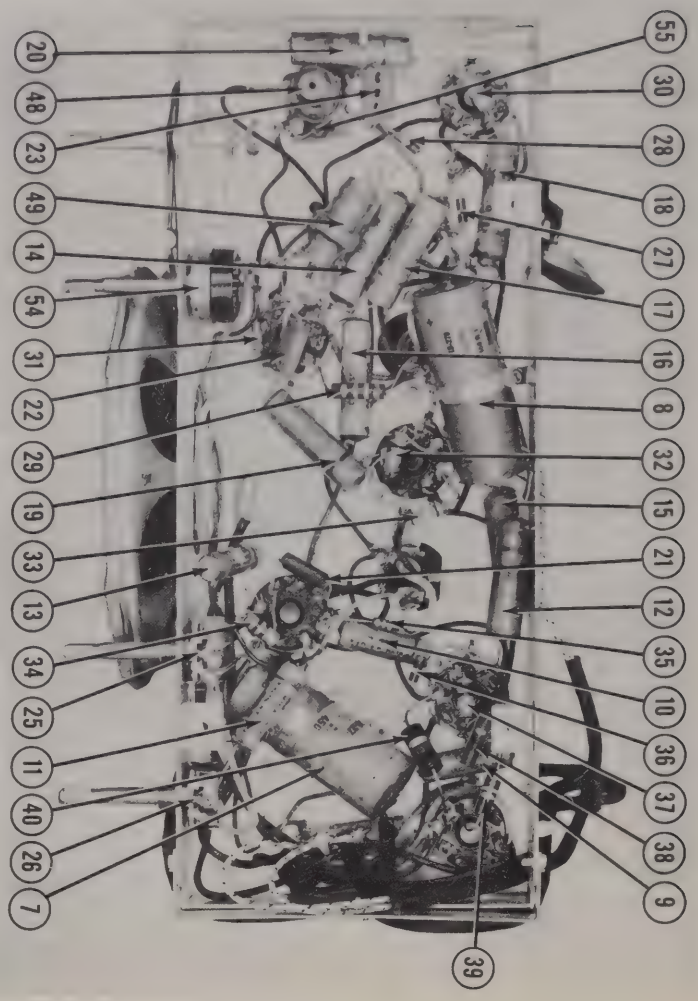
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CLARION PART No.		
51	Bayonet	6-8	0.25	Blue			Type 44
52	"	6-8	0.25	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	CLARION PART No.	NOTES
53	Switch	A69-169	On-Off
54	Tuning Cap.	B19-186	3 Gang Variable Cap.
57	Switch	A69-172	Radio-Phono
	Dial Scale	C67-488	
	Knob	A52-190	
	"	A52-188	(Phono-Radio)
	Dial Pointer	A56-47	
	Plate	B63-290	Dial Diffusing
	Cover	C71-23	Dial Plate Assby.
	Shaft & Pulley	A84-41	Dial Drive

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

1 - Remove the on-off, volume control, tone control, and tuning control push-on type knobs.

2 - Remove eight wood screws holding antenna loop to rear of cabinet.

3 - Disconnect four leads from loop antenna and remove loop.

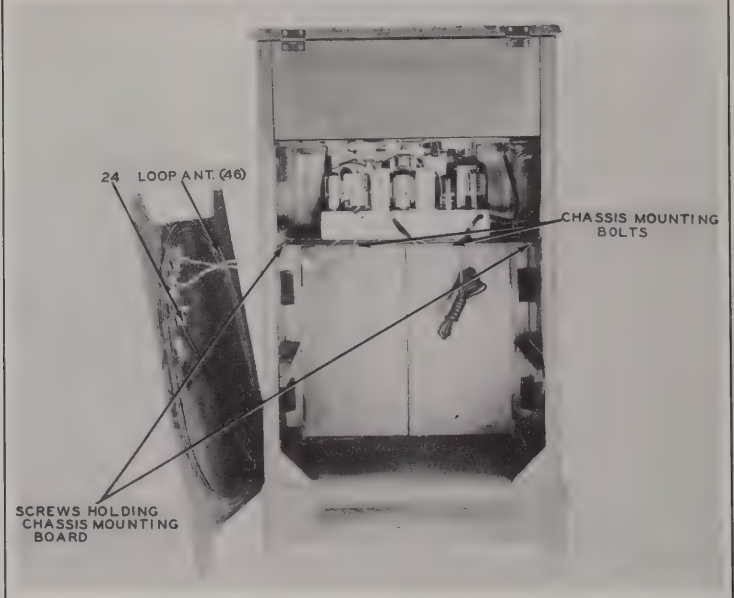
4 - Remove phono-radio switch push-on type knob. Remove nut holding switch to mounting board and remove switch.

5 - Disconnect phono-pickup leads.

6 - Disconnect phono-motor leads.

7 - Remove the four wood screws and washers holding chassis board to cabinet. Remove chassis board.

8 - Remove four hex screws and washers holding chassis to chassis board. Remove chassis.



VOLTAGE READINGS

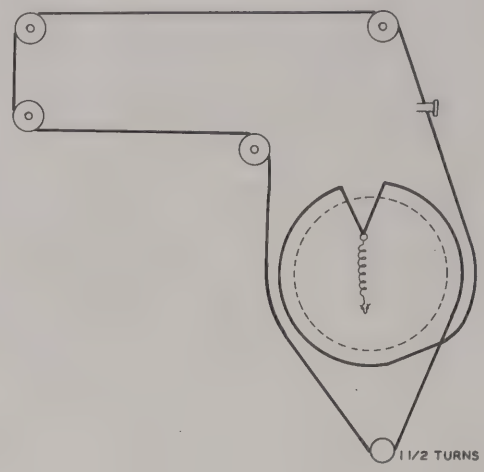
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0v.	0v.	1.4v.DC	-.07v.DC	1.4v.DC	70v.DC	6.2v.AC	260v.DC
2	6SA7GT	0v.	0v.	260v.DC	85v.DC	- 4.1v.DC	0v.	6.2v.AC	-.35v.DC
3	6SK7GT	0v.	0v.	6.6v.DC	-.35v.DC	6.6v.DC	112v.DC	6.2v.AC	260v.DC
4	6SQ7GT	0v.	-.8v.DC	0v.	-.35v.DC	-.15v.DC	85v.DC	6.2v.AC	0v.
5	6K6GT	0v.	0v.	275v.DC	260v.DC	0v.	172v.DC	6.2v.AC	19v.DC
6	5Y3GT	288v.DC	288v.DC	0v.	285v.AC	0v.	285v.AC	0v.	288v.DC

RESISTANCE READINGS

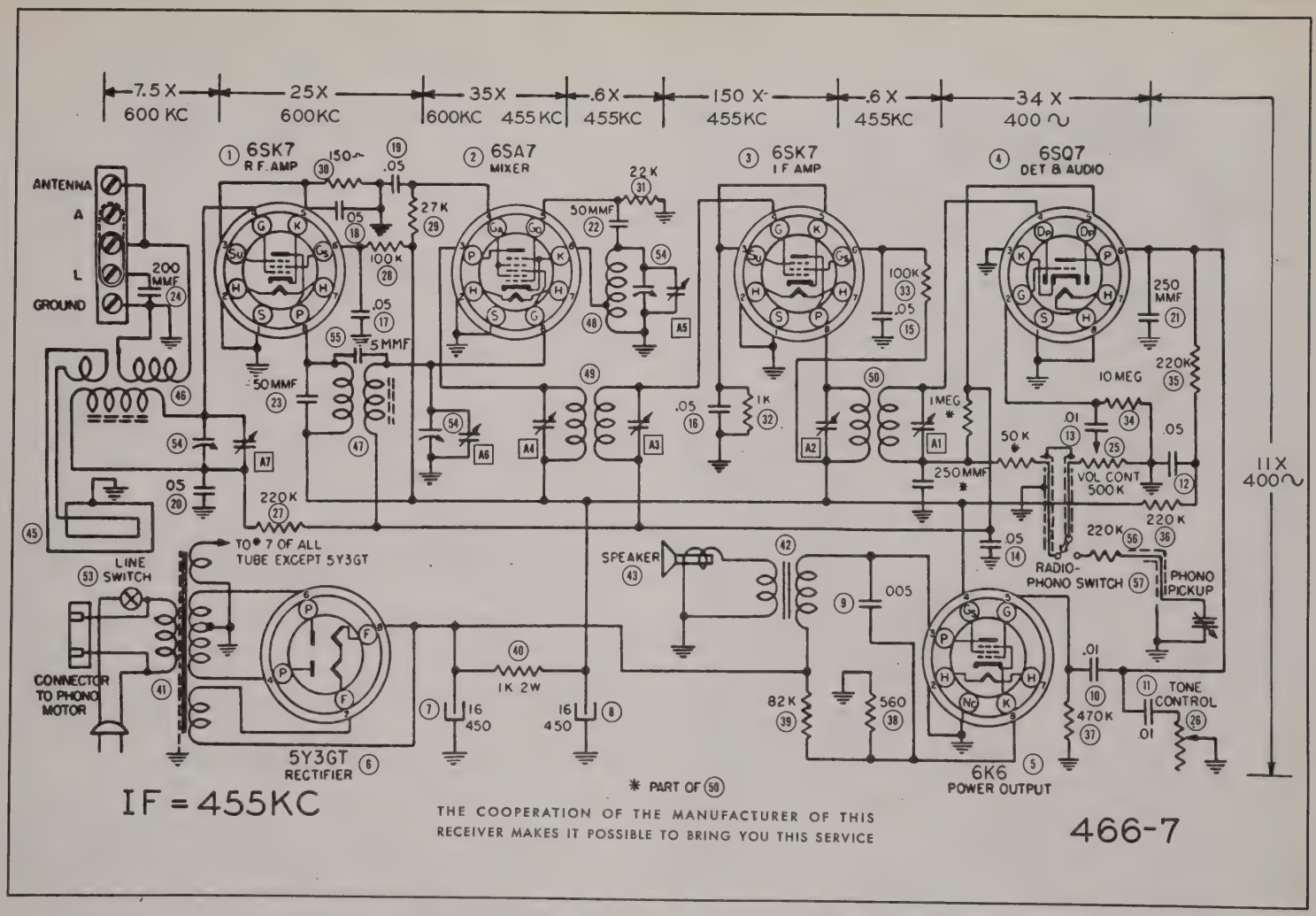
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0 Ω	0 Ω	150 Ω	1.6MEG	150 Ω	160KΩ	.1 Ω	56KΩ
2	6SA7GT	0 Ω	0 Ω	56KΩ	80KΩ	21.5KΩ	5 Ω	.1 Ω	1.4 MEG
3	6SK7GT	0 Ω	0 Ω	900 Ω	1.4MEG	900 Ω	160KΩ	.1 Ω	56KΩ
4	6SQ7GT	0 Ω	1MEG	0 Ω	1.4MEG	520KΩ	300KΩ	.1 Ω	0 Ω
5	6K6GT	0 Ω	0 Ω	56KΩ	56KΩ	94KΩ	250KΩ	.1 Ω	490Ω
6	5Y3GT	56KΩ	56KΩ	INF	210Ω	INF	220 Ω	INF	56KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

CORONET
MODEL C-2

CORONET
MODEL C-2

CORONET MODEL C-2

TRADE NAME	Coronet Model C-2
MANUFACTURER	Crystal Products Co., 1519 McGee Trafficway, Kansas City, Mo.
TYPE SET	AC - DC Superheterodyne Receiver
TUBES (FIVE)	Types, 14Q7 Converter, 14A7/12B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-117 Volts AC-DC
TUNING RANGE—BROADCAST	540-1700KC RATING .245 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

To set pointer, turn tuning mechanism fully counter-clockwise and set pointer under last calibration mark at left end of dial. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 6 (grid) of 14Q7 Low side to B-.	455KC	High freq.end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to prevent excessive hum modulation.
200 MMF.	High side to ext. ant. Low side to B-.	1700KC	1700KC	"	A5	"
200 MMF.	"	1400KC	Tune for maximum output.	"	A6	"
200 MMF.	"	600KC	600KC	"	A7	Adjust for maximum output. Recheck A5 at 1700KC and A6 at 1400KC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CORONET PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7/12B7	14A7/12B7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONET PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150		FP354	DY-40+30+20-150	EL-324	AF844D	UP6CJ44	■ Filter
B	20	150							▲ "
C	20	150							"
7	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.25	200		TP430	S-4-25	TC-2	484-.25	DT4P25	Line Isolating
9	.02	600		TP412	S-6-02	TC-12	684-02	DT6S2	50A5 Plate Bypass
10	.02	600		TP412	S-6-02	TC-12	684-02	DT6S2	Audio Coupling
11	.004	200		TP407	S-6-004	TC-24	484-004	DT6D4	" "
12	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	250	500		MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
15	10	500		MC215	M0.5-41	MS-41	1468-00001	5W5Q1	Tone Compensation
16	50	500		MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
17	50	500		MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	RF Coupling
18	10	500		MC215	M0.5-41	MS-41	1468-00001	5W5Q1	Ant. Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONET PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1	1.40625	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

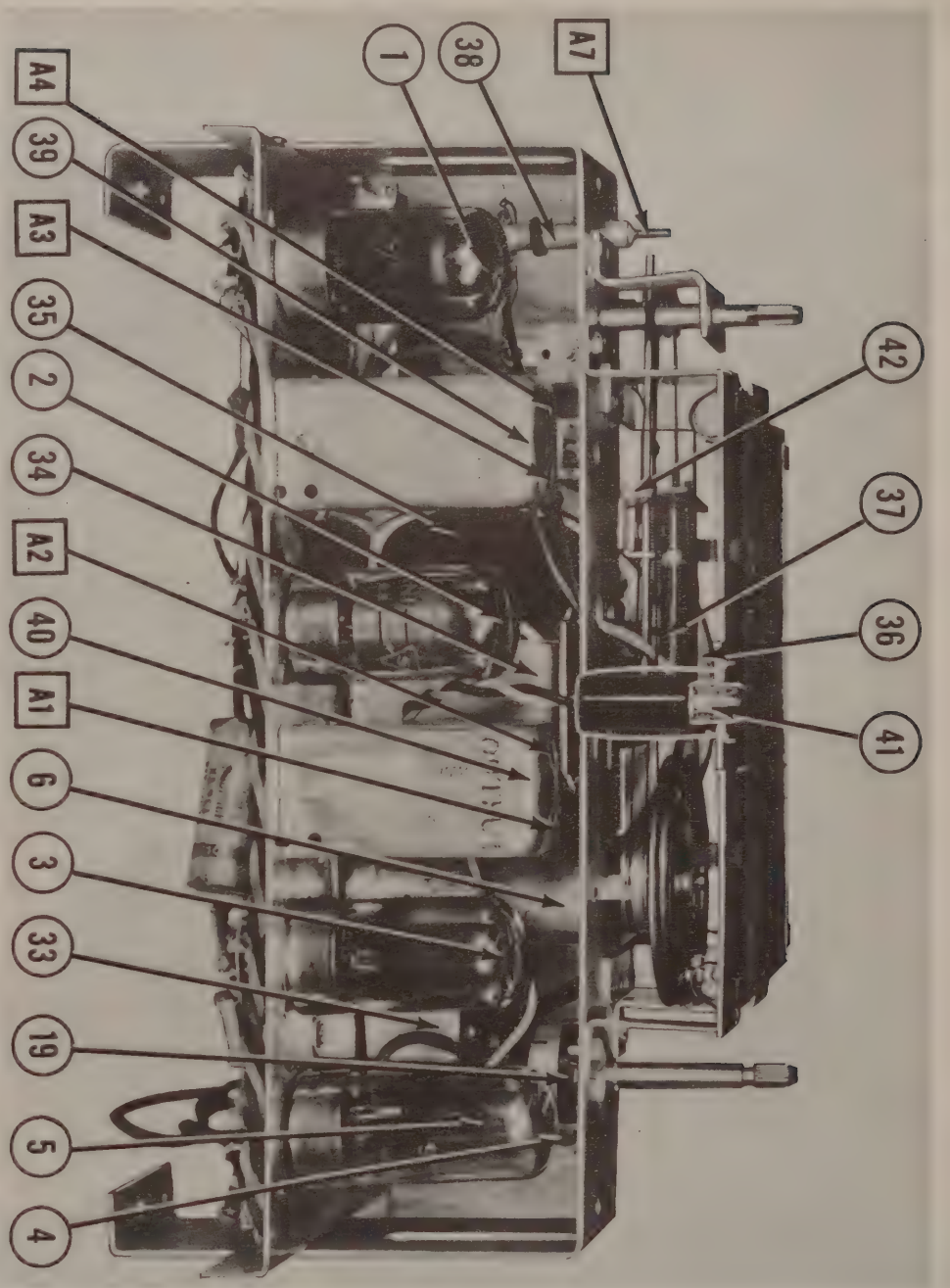
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONET PART No.	IRC PART No.	IDENTIFICATION CODES
20	25KΩ	½		BTS-22K	Red-Blk.-Or. Osc. Grid
21	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
22	1.9 Meg.	½		BTS-1.8 Meg.	Br.-White-Grn. AVC Network
23	33Ω	½		BW-½-33	Or.-Or.-Blk. IF Cathode
24	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. 1st AF Grid
25	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
26	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
27	170Ω	½		BW-½-180	Br.-Vi.-Br. Output Cathode
28	18KΩ	½		BTS-18K	Br.-Gray-Or. Voltage Divider Bias
29	670Ω	½		BTS-680	Blue-Vi.-Br. Filter
30	1000Ω	½		BTS-1000	Br.-Blk.-Red "
31	22Ω	½		BW-½-22	Red-Red-Blk. Surge Limiter
32	170Ω	½		BW-½-180	Br.-Vi.-Br. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CORONET PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
33	2000Ω	2.8Ω	220Ω	.62Ω		A-3876	T-22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	CORONET PART No.	JENSEN PART No.		
34	PM	2.8Ω		ST-106* Mod. P5-W		*Drill new mounting holes.
	CONE DIA.	VC DIA.				
35	4-5/8"	1/2"	Not Readily Replaceable-Use Complete Speaker Unit.			

R F COILS

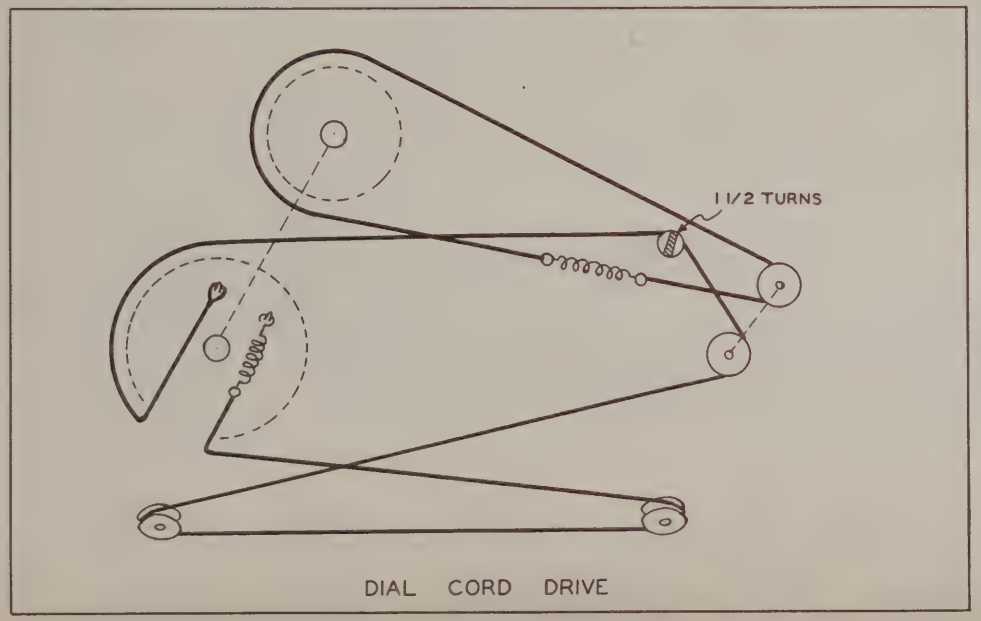
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CORONET PART No.	MEISSNER PART No.	
36	Ant. Coil		9.3Ω			Items 36 & 37, ganged and slug tuned.
37	Osc. "		3Ω			
38	Osc. Padder	4.5Ω				
39	Input IF	15.5Ω	14.5Ω		16-6658	
40	Output IF	14.5Ω	14.5Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CORONET PART No.		
41	Bayonet	6-8	0.15	Brown			Type 47

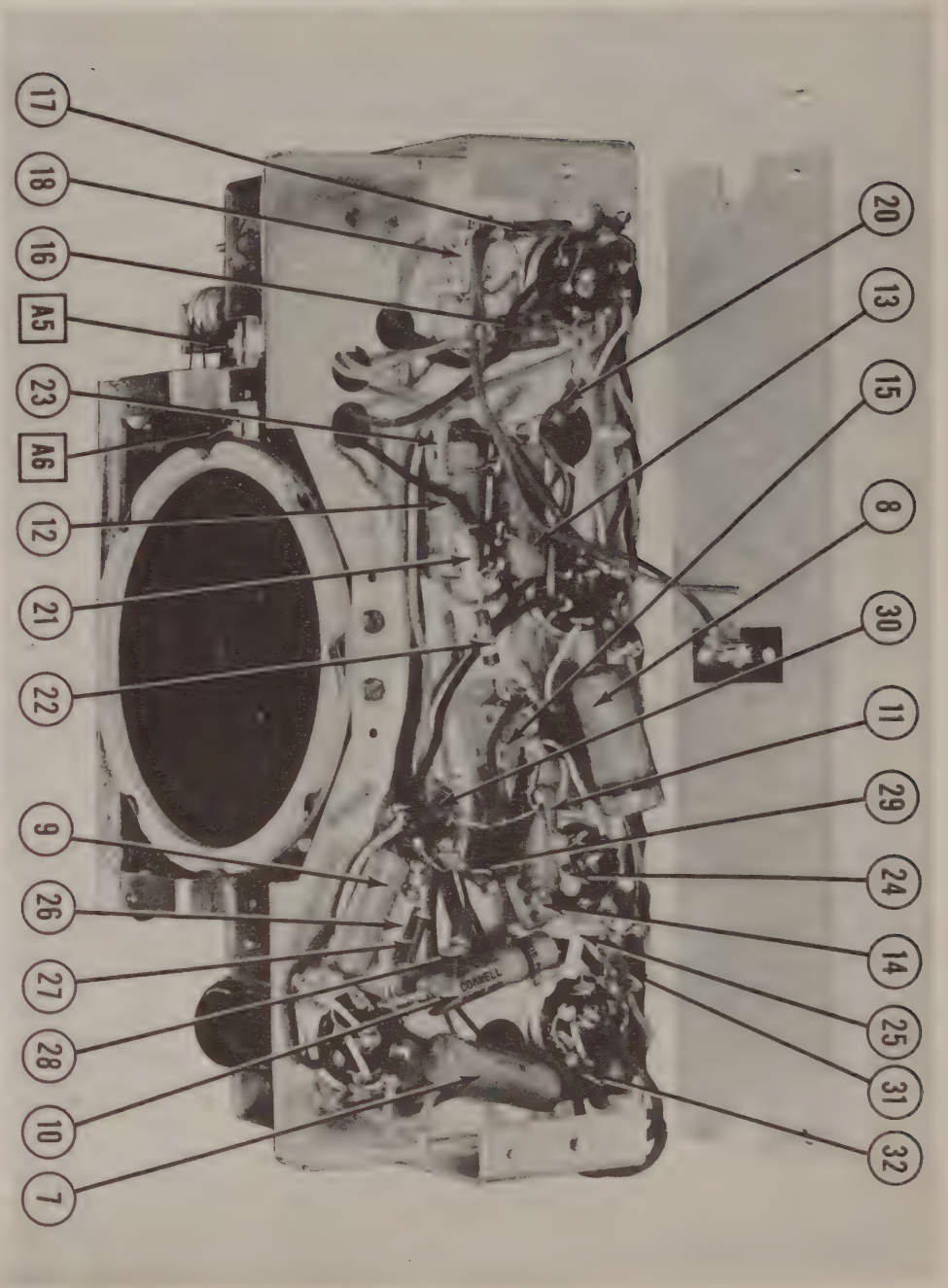
MISCELLANEOUS

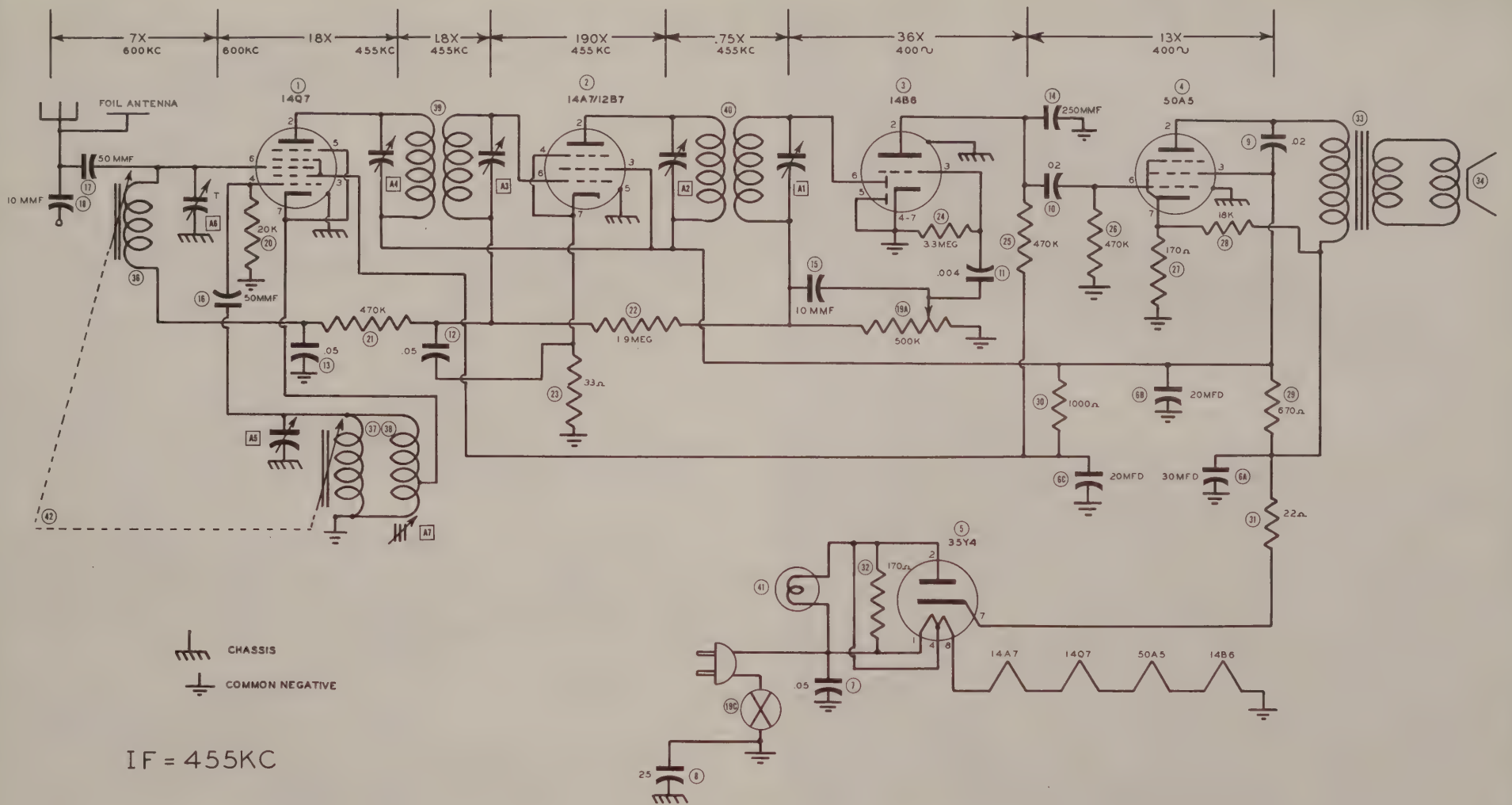
ITEM No.	PART NAME	CORONET PART No.	NOTES
42	Tuning Assby.		



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





IF = 455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	7.7VAC	95V. DC	88V. DC	-.3V. DC	0V	-1.5V. DC	0V	65V. AC
2	14A7/12B7	88VAC	95V. DC	95V. DC	-.55V. DC	0V	-.05V DC	-.55V. DC	77V. AC
3	14B6	0V	50V. DC	-.4V. DC	0V	0V	-.5V. DC	0V	14V. AC
4	50A5	65VAC	102V.DC	95V. DC	102V. DC	0V	0V	6.6V. DC	14V. AC
5	35Y4	117V. AC	113V. AC	0V	113V. AC	88V. DC	109V. DC	111V. DC	88V. AC

RESISTANCE READINGS

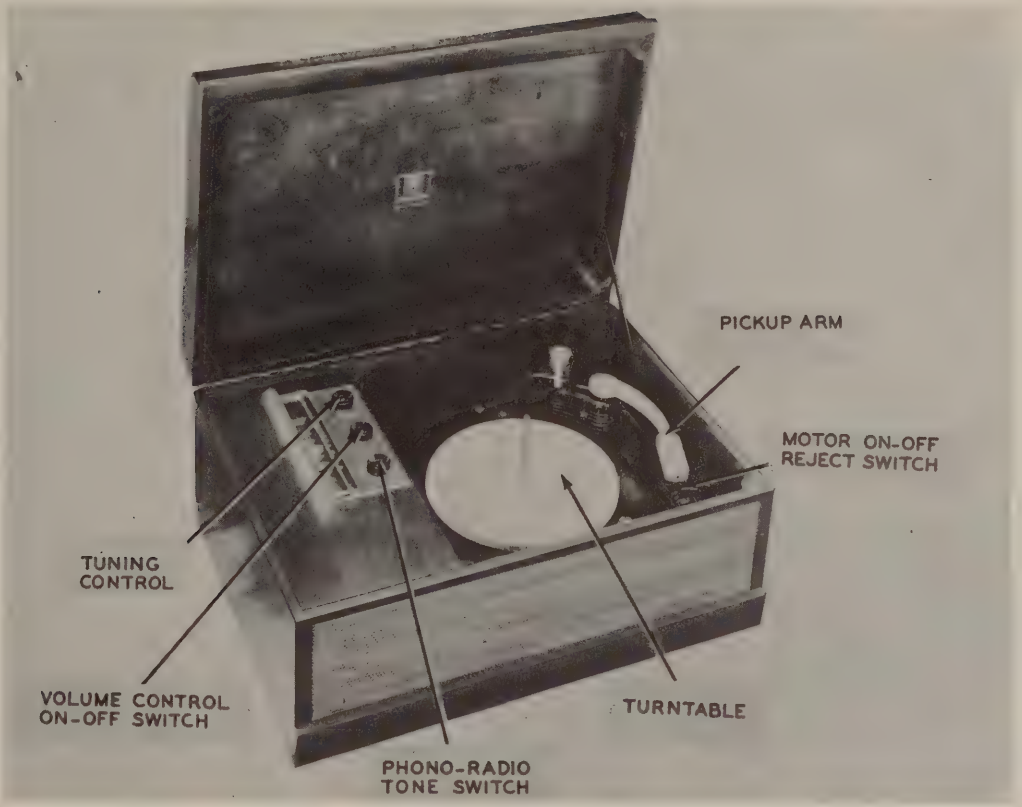
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	73Ω	1.7KΩ	18KΩ	22KΩ	.5Ω	3 MEG	.5Ω	60Ω
2	14A7/12B7	85Ω	1.7KΩ	1.7KΩ	33Ω	0Ω	2.5 MEG	33Ω	73Ω
3	14B6	0Ω	490KΩ	3.8MEG	0Ω	0Ω	440KΩ	0Ω	13Ω
4	50A5	60Ω	1.7KΩ	1.7KΩ	1.7KΩ	0Ω	.5 MEG	160Ω	13Ω
5	35Y4	113Ω	113Ω	1 N.F	113Ω	18KΩ	1.7KΩ	1.7KΩ	85Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-8

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



EMERSON MODEL 506

TRADE NAME	Emerson Model 506 (Ch. No. 120003)
MANUFACTURER	Emerson Radio & Phono Corp., 111 8th Ave., New York, N.Y.
TYPE SET	AC Operated Combination Automatic Phono & Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SS7 RF Amp., 12SA7GT Osc.-Modulator, 12SF7 Det.-IF-AVC, 6SS7 AF Amp., 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC RATING - .250 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS

Marker points referred to below are small triangular marks at lower edge of dial plate. To set pointer, turn variable fully closed and set pointer at extreme left marker point. During alignment, make sure relative positions of receiver and loop are similar to positions when in cabinet. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Volume control at maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to pin 8 of 12SA7. Low side to chassis.	455KC	High freq. end of dial. (Variable fully open.)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	High side to ext. ant. lead. Low side to chassis.	"	"	"	A5	" " " "
	Loop	1425KC	Pointer opposite second marker point from right end.	"	A6,A7.	Connect signal generator to a coil of three or four turns of wire wound in a circle 12" in diameter. Place coil parallel to and in line with the receiver loop at a distance of 15 to 20 inches. Adjust for maximum output in order given.
	"	600KC	Tune for maximum output.	"	56	Radiate signal as above. Rock dial and adjust the loose outside turn of the loop antenna for maximum output. Recheck A6 and A7 at 1425KC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SS7	6SS7	8N	
2	Osc.-Modulator	12SA7GT	12SA7GT	8AD	
3	Det.-IF-AVC	12SF7	12SF7	7AZ	
4	AF Amp.	6SS7	6SS7	8N	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	925080	TN129	DSB-80+40+20	TA-440*		BRD4415*	Filter - Red
B	20	150		TC45	150	TU-420		BRD4215	" - White
C	80	150							" - Blue
8	8	150	925100	TC42	M-8-150	UT-81	PRS150-8	BR815	Screen Bypass
9	.05	400	920030	TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
10	.05	200	920060	TP426	S-4-05	TC-15	484-05	DT4S5	Feedback
11	.005	400	920180	TP408	S-6-005	TC-25	484-005	DT6D5	50L6 Plate Bypass
12	.02	400	920020	TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
13	.05	200	920060	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Plate Decoup.
14	.002	600	920010	TP405	S-6-002	TC-22	684-002	DT6D2	Tone Compensation
15	.005	400	920180	TP408	S-6-005	TC-25	484-005	DT6D5	" "
16	.05	200	920060	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Screen Bypass
17	.05	200	920060	TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supp.
18	.002	600	920010	TP405	S-6-005	TC-22	684-002	DT6D2	Audio Coupling
19	.05	200	920060	TP426	S-4-05	TC-15	484-05	DT4S5	RF Screen Bypass
20	.1	200	920040	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
21	.002	600	920010	TP405	S-6-002	TC-22	684-002	DT6D2	Ant. Coupling
22	.001	600	920170	TP404	S-6-001	TC-21	684-001	DT6D1	Tone Compensation
23	.05	200	920500	TP426	S-4-05	TC-15	484-05	DT4S1	Phono Motor Bypass
24	400	500	910050	MC243	MO.5-34	1FM-34	1468-0004	5W5T4	50L6 Grid Bypass
25	110	500	910010	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling
26	220	500	910000	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	RF Coupling
27	26		910030	MC220	MO.5-425	MS-425	1468-00002	5W5Q25	Phono. Tone Comp.
28	110	500	910010	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" " "
29	220	500	910000	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	IF Bypass Diode
30	250	500	910040	MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Tone Compensation

* Parallel two sections to get desired capacity.

CONTROLS

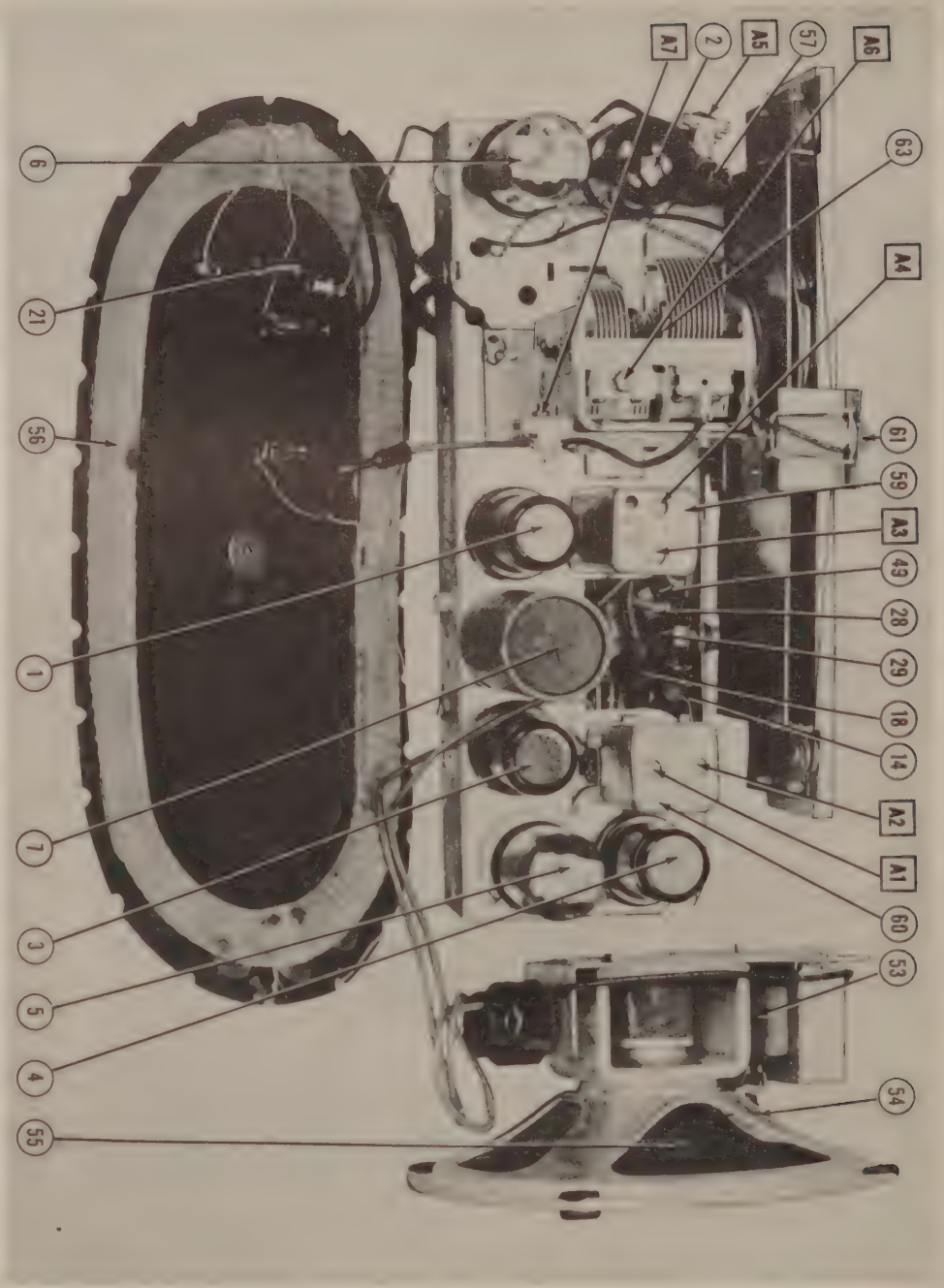
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
31A	2.5 Meg.	1	390050	TM249	D13-139X	AT123#	Volume Control
B	Shaft		Not Req.	S825	E	KSS-3	Attach to 31A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

#Use 500KΩ tap. Cut other tap off.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
32	1 Meg.	½	321210	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
33	33KΩ	½	310850	BTS-33K	Or.-Or.-Or. RF Screen Dropping
34	10KΩ	½	310730	BTS-10K	Br.-Blk.-Or. RF Plate Load
35	22KΩ	½	310810	BTS-22K	Red-Red-Or. Converter Grid
36	22KΩ	½	310810	BTS-22K	Red-Red-Or. Osc. Grid
37	1000Ω	½	340490	BTS-1000	Br.-Blk.-Red Screen Dropping
38	3.3 Meg.	½	321330	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
39	10 Meg.	½	321450	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
40	2.2 Meg.	½	321290	BTS-2.2 Meg.	Red-Red-Grn. 1st AF Screen Dropping
41	220KΩ	½	321050	BTS-220K	Red-Red-Yl. 1st AF Plate Load
42	47KΩ	½	310890	BTS-47K	Yl.-Vi.-Or. 1st AF Plate Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	EMERSON PART No.	IRC PART No.	
43	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. Output Grid
44	150Ω	½	340290	BW-½-150	Br.-Grn.-Br. Output Cathode
45	2.2 Meg.	½	321290	BTS-2.2 Meg.	Red-Red-Grn. Feedback
46	15Ω	½	310050	BW-½-15	Br.-Grn.-Blk. Surge Limiter
47	180Ω	1	397010	BW-1-180	Br.-Gray-Br. Filter
48	470Ω	1	370410	BTA-470	Yl.-Vi.-Br. Filter
49	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. Phono Tone Compensation
50	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. Diode Load
51	470KΩ	½	321130	BTS-470K	Yl.-Vi.-Yl. Tone Compensation
52	100KΩ	½	320970	BTS-100K	Br.-Blk.-Yl. Tone Compensation

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
53	1600Ω	2.9Ω	170Ω	.64Ω	734030	A-3876†	T-14582†		†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			EMERSON PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-111		
54	PM	2.9Ω	186004	Mod. P6-U		
	CONE DIA.	VC DIA.				
55	6-1/16"	5/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

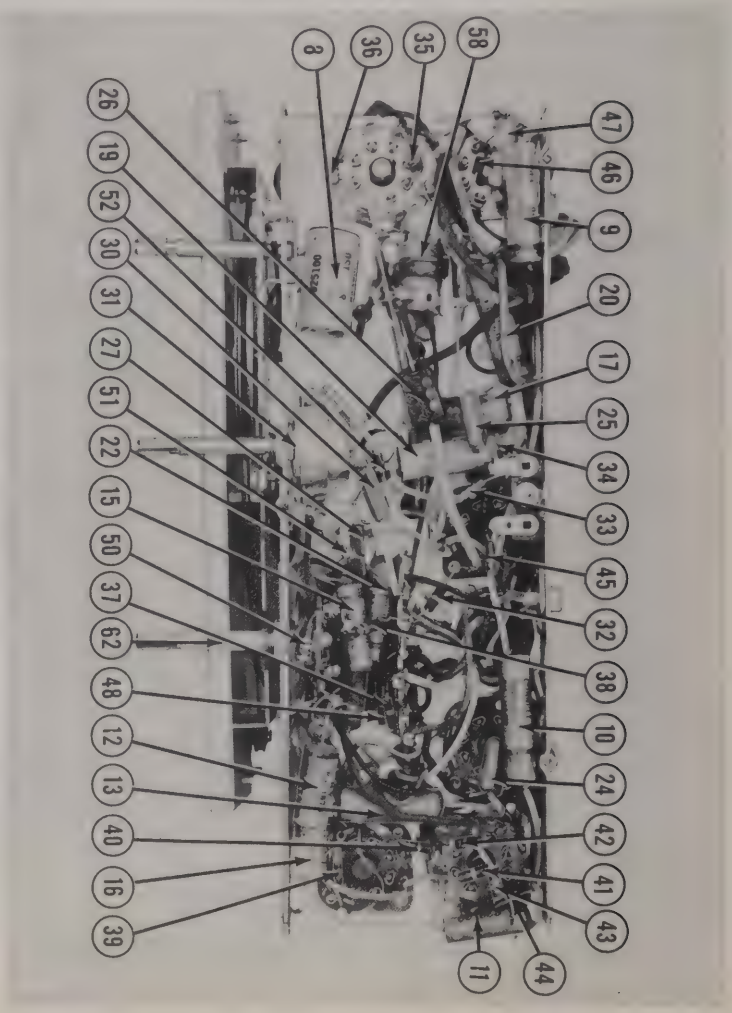
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
56	Loop Ant.		1.5Ω	700070		
57	Wave Trap	67Ω		709000		
58	Osc. Coil	1Ω	6.8Ω	716050‡	14-1040††	
59	Input IF	34Ω	32Ω	720270	16-6658	
60	Output IF	27Ω		720370	16-6670	

‡Some models use 716060
††Add 50 MMFD cap. from grid to high side of tuning cap.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					EMERSON PART No.		
61	Bayonet	6-8	0.2	white	807010		Type 51

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
62	Switch	510100	Phono-Tone
63	Tuning Cap.	900180	2 Gang Variable Cap.
A7	Trimmer	900190	Ant. Adj. 1.8-12 MMFD.
	Cabinet	140003	Walnut
	"	140011	Mahogany
	Record Changer	819005 or 819003	
	Knob	460470	Volume and Selector
	"	460300	Phono-Radio
	Bottom Cover	560080	
	Dial Plate	411070	
	Pointer	525100	
	Drive Shaft	280153	
	Spring	587000	Drive Cord, Dial
	"	587070	" " , Var. Cap.

DISASSEMBLY INSTRUCTIONS

1. Remove the volume control, tuning control and phono-radio control switch, push-on type knobs.
2. Disconnect speaker plug from speaker.
3. Disconnect phono-motor connection.
4. Disconnect phono-pickup jack from chassis.
5. Remove plug inside of the phonograph cabinet.
6. Remove the hex nut holding chassis to cabinet and also the two on the underneath side of the cabinet.
7. Remove chassis.
8. Remove the hex nut and washer from the antenna loop. Remove antenna loop.
9. Remove two hex nuts and washers on speaker. Remove speaker.

VOLTAGE READINGS

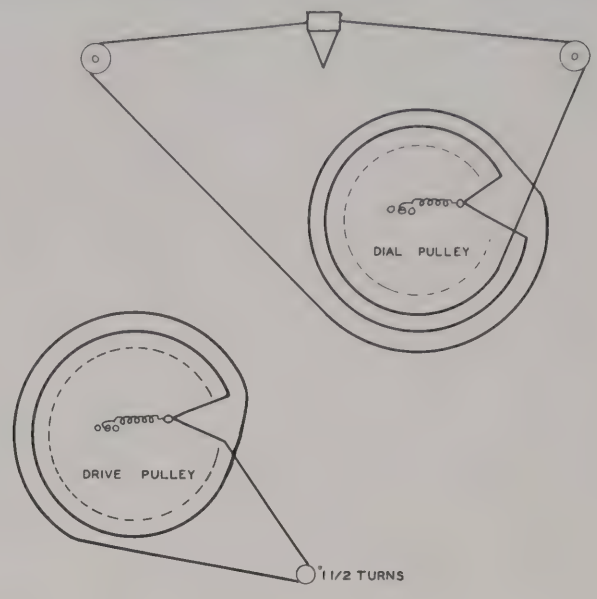
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	0V	6.5V AC	0V	-.45V.DC	0V	50V. DC	12.2VAC	43V. DC
2	12SA7GT	0V	12.2VAC	87V. DC	77V DC	-5.9V.DC	0V	26.2VAC	-25V. DC
3	12SF7	0V	-35V.DC	0V	77V. DC	-3V. DC	87V. DC	26.2VAC	38V. AC
4	6SS7	0V	0V	0V	-.6V. DC	0V	4.8V. DC	6.5V. AC	33V. DC
5	50L6GT	0V	38V AC	98V DC	87V. DC	0V	79V. DC	87V. AC	5.8V. DC
6	35Z5GT	0V	117V. AC	113V. AC	116V DC	113V.AC	103V. DC	87V. AC	117V. DC

RESISTANCE READINGS

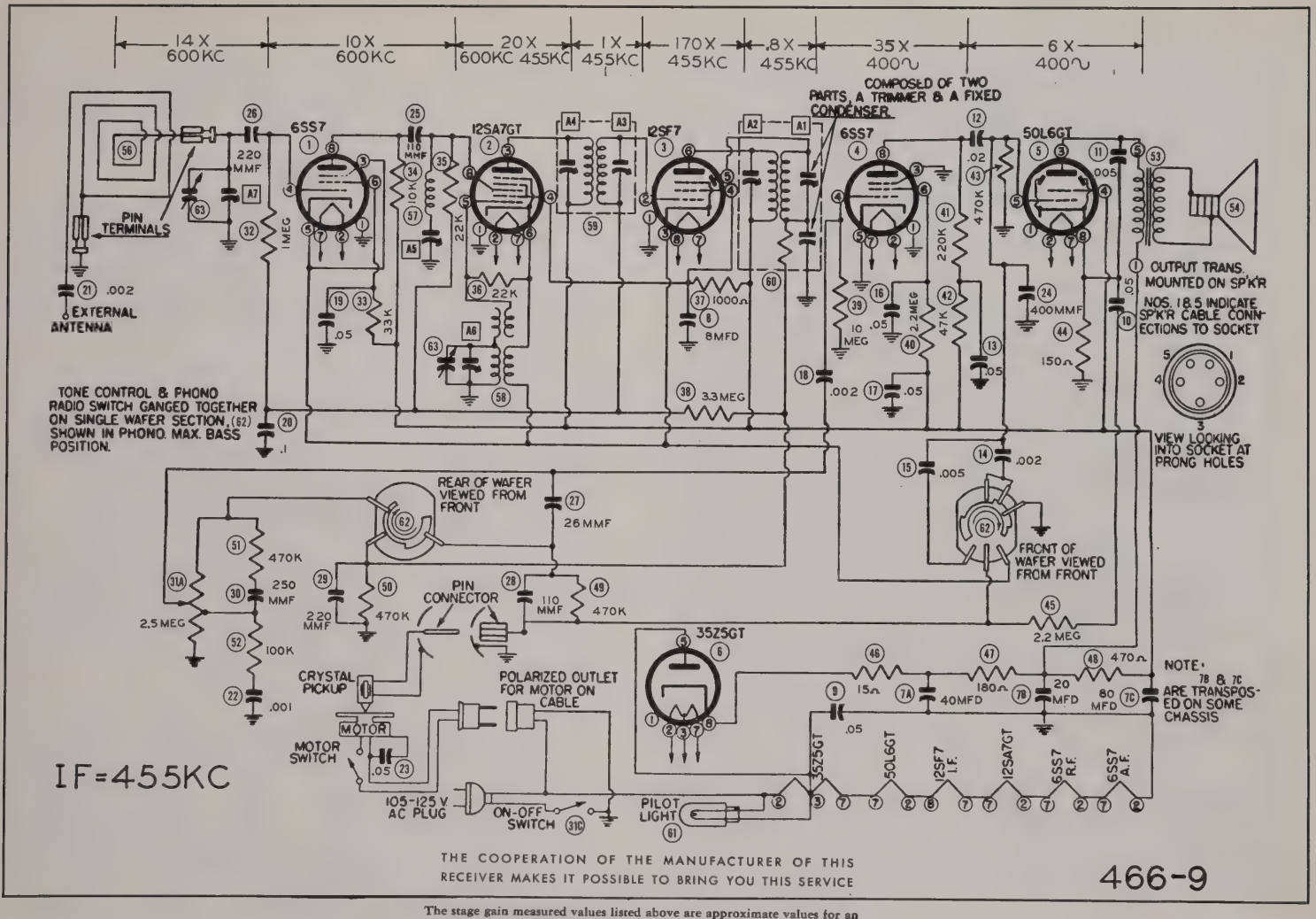
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	0Ω	7Ω	0Ω	6 MEG	0Ω	73KΩ	14Ω	50KΩ
2	12SA7GT	0Ω	14Ω	40KΩ	41KΩ	23KΩ	.75Ω	28Ω	4.5MEG
3	12SF7	0Ω	4.5MEG	0Ω	41KΩ	460KΩ	40KΩ	28Ω	40Ω
4	6SS7	0Ω	0Ω	0Ω	13MEG	0Ω	2.2MEG	7Ω	300KΩ
5	50L6GT	0Ω	40Ω	40KΩ	40KΩ	480KΩ	87KΩ	90Ω	150Ω
6	35Z5GT	INF	120Ω	118Ω	40KΩ	118Ω	40KΩ	90Ω	40KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

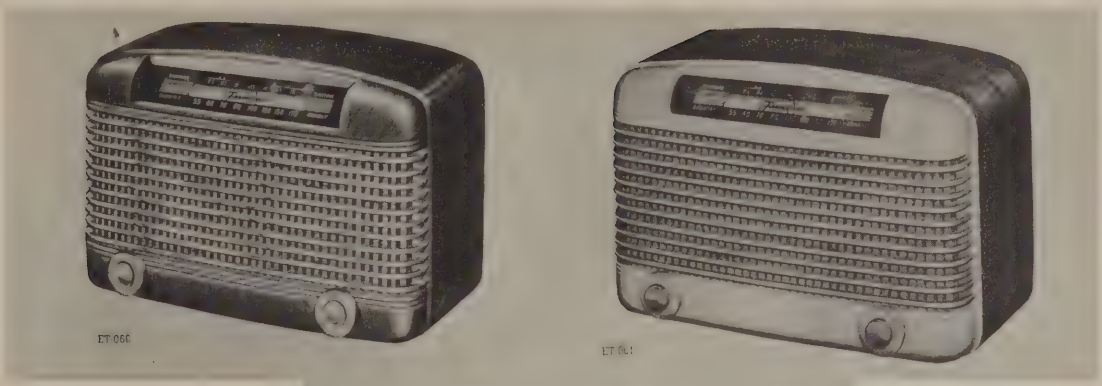


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

466-9

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

FARNSWORTH
MODELS ETO-60, ETO-61, ETO-63



FARNSWORTH MODEL ET-060

TRADE NAME	Farnsworth Models ET-060, ET-061, ET-063 (Chassis C-150)
MANUFACTURER	Farnsworth Television & Radio Corp., Fort Wayne, Ind.
TYPE SET	AC-DC 2 Band Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SS7 RF Amp., 12SA7 Converter, 6SS7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC — RATING .260 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1620KC — **SHORT WAVE** 9.4-15.4MC

ALIGNMENT INSTRUCTIONS

To set pointer turn variable fully closed and set pointer at reference mark at left end of the dial. Place loop in approximately the same relative position to chassis as when chassis is installed in cabinet. Use isolation transformer if available. If not, connect a capacitor in series with the low side of the signal generator and B-. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
100 MMF.	High side to ext ant. (black). Low side to B-.	455KC	BC	High freq. end. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
100 MMF.	"	1500KC	"	Extreme right calibration mark at top of dial backplate.	"	A5	" " " "
100 MMF.	"	"	"	"	"	A6	Adjust for maximum output. Check calibration at 1000 KC. (Second and third marks from right at top of dial backplate)
400 ohms	"	15.0MC	SW	High freq. end. (Variable fully open)	"	A7	Adjust for maximum output Use peak farthest from maximum capacity.
400 ohms	"	12.5MC	"	Tune for maximum output.	"	A8	Rock dial and adjust for maximum output. Use peak nearest maximum capacity.
400 ohms	"	10.0MC	"	"	"	A9	Rock dial and adjust for maximum output. Recheck A7 at 15.0MC and A8 at 12.5MC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: FARNSWORTH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SS7	6SS7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	6SS7	6SS7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FARNSWORTH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	25022	2N513	M-30+20-150	TA-230	PRSA150-30-20/25-100#	BRL3215	Filter - Red
B	20	150							" - Yellow
8	.02	600	25195	TP412	S-6-02	TC-12	684-02	DT6S2	Line Filter
9	.003	600	25184	TP406	S-6-003	TC-23	684-003	DT6D3	Tone Compensation
10	.01	600	25194	TP410	S-6-01	TC-11	684-01	DT6S1	50L6 Plate Bypass
11	.01	600	25194	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
12	.01	600	25194	TP410	S-6-01	TC-11	684-01	DT6S1	" "
13	.05	600	25196	TP415	S-6-05	TC-15	684-05	DT6S5	AVC Filter
14	.05	600	25196	TP415	S-6-05	TC-15	684-05	DT6S5	Conv. Screen Bypass
15	.05	600	25196	TP415	S-6-05	TC-15	684-05	DT6S5	RF Screen Bypass
16	.1	600	25215	TP418	S-6-1	TC-1	684-.1	DT6P1	Line Isolating
17	.001	600	25197	TP404	S-6-001	TC-21	684-001	DT6D1	Ant. Coupling
18	240	500	25187	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
19	240	500	25187	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	IF Bypass Vol. Cont.
20	47	500	25193	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
21	100	500	25188	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

#Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FARNSWORTH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1	78070	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

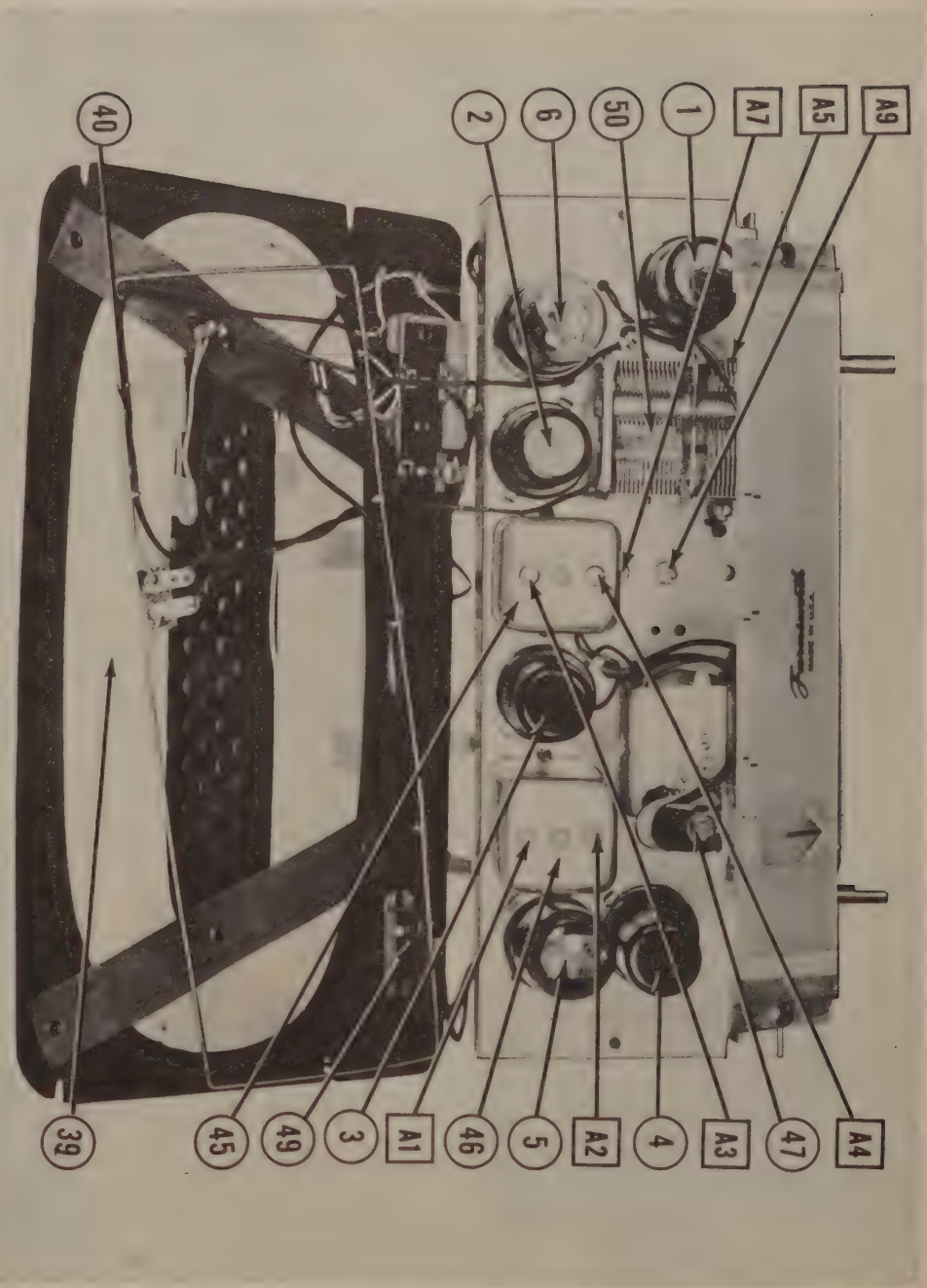
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FARNSWORTH PART No.	IRC PART No.	IDENTIFICATION CODES
23	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Line Isolating
24	15KΩ	½	77265	BTS-15K	Br.-Grn.-Or. RF Screen Dropping
25	4700Ω	½	77211	BTS-4700	Yl.-Vi.-Red RF Plate Load
26	22KΩ	½	77266	BTS-22K	Red-Red-Or. Peaking Assembly
27	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Converter Grid
28	22KΩ	½	77266	BTS-22K	Red-Red-Or. Osc. Grid
29	470Ω	½	77261	BTS-470	Yl.-Vi.-Br. Filter
30	2.2 Meg.	½	77270	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	6.8 Meg.	½	77273	BTS-6.8 Meg.	Blue-Gray-Grn. 1st AF Grid
32	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
33	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Output Grid
34	150Ω	½	77259	BW-½-150	Br.-Grn.-Br. Output Cathode
35	150Ω	½	77259	BW-½-150	Br.-Grn.-Br. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: FARNSWORTH PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
36	1900Ω	3.5Ω	200Ω	.75Ω	94091	A-3876	T-14S82		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FARNSWORTH PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.		ST-450*		*Add 650Ω 2 W. resistor in parallel
37	270Ω	3.5Ω	81091	Mod. H5-S		with field coil.
	CONE DIA.	VC DIA.				
38	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	FARNSWORTH PART No.	MEISSNER PART No.	
39A	BC Loop Ant.	0Ω	.5Ω	38465		Used in models ET-060, ET-061
B	BC " "			38480		" " " ET-063
40	SW " "	0Ω	0Ω	38535		
41	Peaking Coil	1.5Ω		38550		
42	Wave Trap "			38484		No continuity through trap
43A	BC Osc.Coil	.8Ω	5.5Ω	38483†	14-1040	†Used with tuning gang No. 26154
B	BC " "			38707‡	14-1040	‡ " " " " " 26239
44A	SW " "	0Ω	.2Ω	38549		" " " " " 26154
B	SW " "			38709		" " " " " 26239
45	Input IF	12.2Ω	12.1Ω	38536	16-6658	
46	Output IF	12.8Ω	12.2Ω	38537	16-6660	

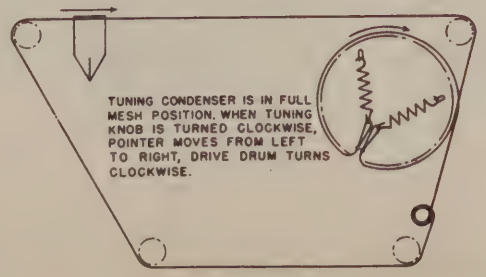
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FARNSWORTH PART No.		
47	Bayonet	6-8	0.15	Brown	42186		Type 47

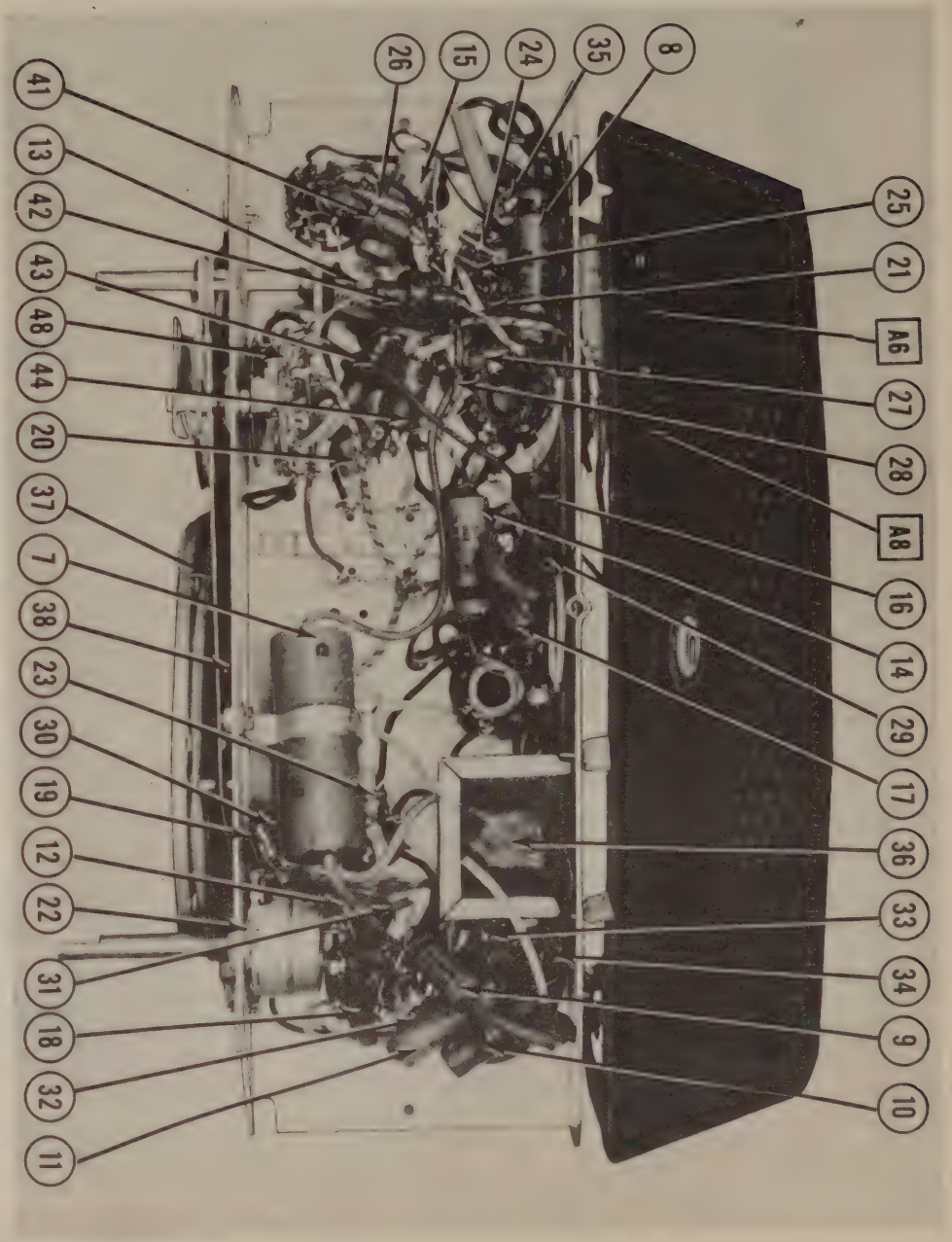
MISCELLANEOUS

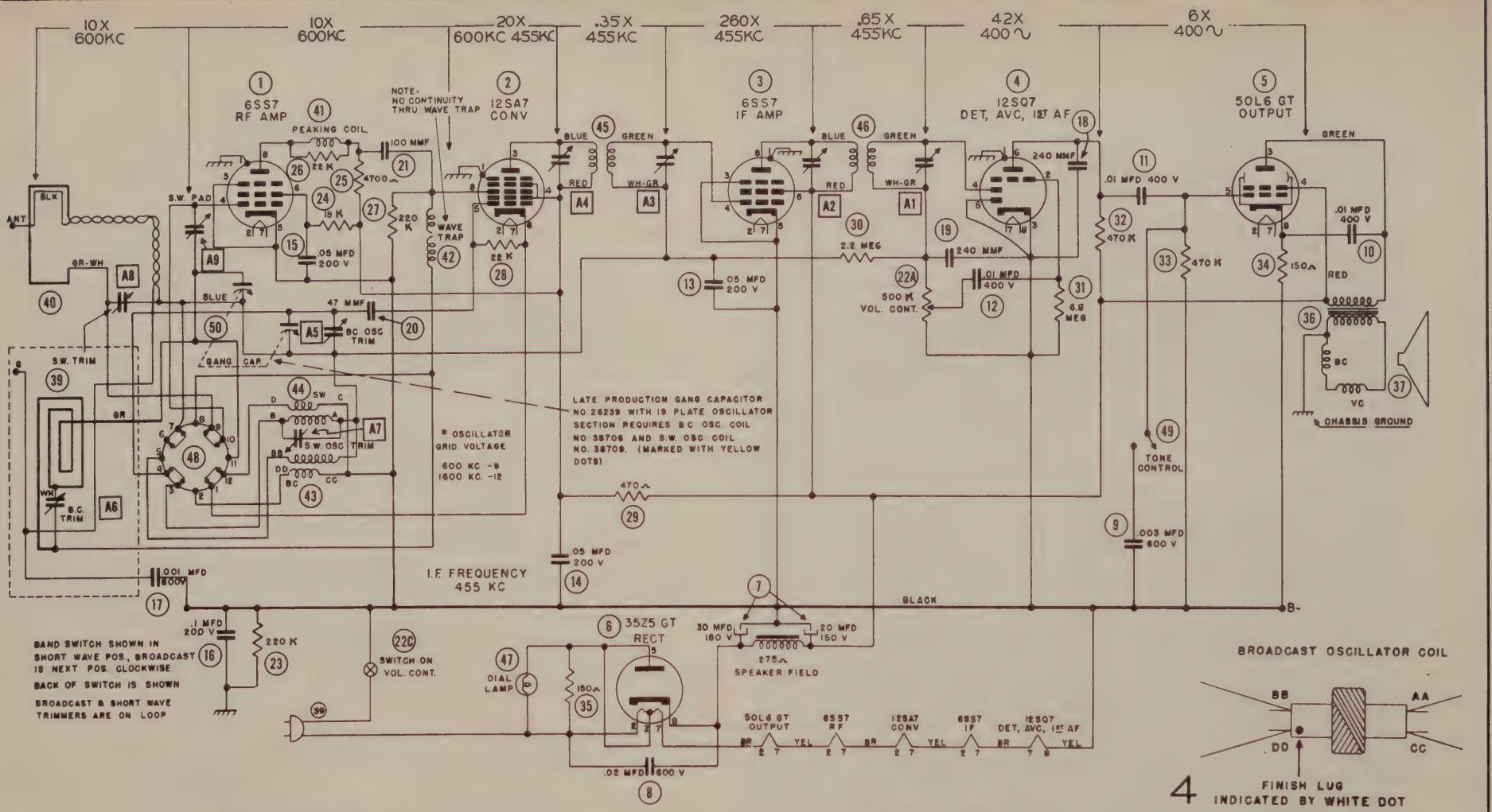
ITEM No.	PART NAME	FARNSWORTH PART No.	NOTES
48	Band Switch	90095	
49	Tone "	90073	
50A	Tuning Cap.	26154	2 Gang Var. Cap.
B	" "	26239	" " " " (See Note #1)
	Trimmer Strip	26214	BC & SW Antenna
	Dial Background	31276	
	Dial Window	31319	
	Pointer Assby.	07334	Dial
	Dial Scale	31277	Models ET-060 & ET-061
	" "	31279	Model ET-063
	Switch Lever	54118	Band Sw. ET-060 & ET-061
	" "	54091	" " ET-063

Note #1-Models with RF trimmer on loop require removal of RF trimmer from gang capacitor having such trimmer. Late production gang capacitor 26239 (identified by red dot) with 19 plate oscillator section requires BC Oscillator Coil 38706 and SW Oscillator Coil 38709 (Marked with yellow dots).


TUNING CONDENSER IS IN FULL MESH POSITION. WHEN TUNING KNOB IS TURNED CLOCKWISE, POINTER MOVES FROM LEFT TO RIGHT, DRIVE DRUM TURNS CLOCKWISE.

CHASSIS—BOTTOM VIEW





BROADCAST OSCILLATOR COIL

FINISH LUG INDICATED BY WHITE DOT

4

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	0V	30V. AC	0V	-.75V.DC	0V	60V. DC	35.5VAC	57V. DC
2	12SA7	0V	30V. AC	90V. DC	90V DC	-.4V. DC	0V	18.5VAC	-.05V. DC
3	6SS7	0V	18.5VAC	0V	-.45V.DC	0V	97V. DC	12V. AC	97V. DC
4	12SQ7	0V	-.5V. DC	0V	-.25V.DC	0V	50V. DC	12V. AC	0V
5	50L6GT	0V	90V. AC	90V. DC	97V. DC	0V	0V	35.5VAC	6.6V.DC
6	35Z5GT	0V	117V. AC	113V. AC	0V	113V.AC	90V. DC	90V. AC	117V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	250K Ω	30 Ω	0 Ω	2.8MEG	0Ω	80KΩ	36 Ω	70KΩ
2	12SA7	250KΩ	30 Ω	65KΩ	65KΩ	23KΩ	.5Ω	18Ω	225KΩ
3	6SS7	250KΩ	18 Ω	0Ω	2.8MEG	0Ω	65K Ω	12 Ω	65KΩ
4	12SQ7	250KΩ	8 MEG	0Ω	580KΩ	0Ω	535KΩ	12 Ω	0Ω
5	50L6GT	250KΩ	86Ω	65KΩ	65K Ω	460KΩ	0Ω	36Ω	160 Ω
6	35Z5GT	INF	113 Ω	110 Ω	0Ω	110Ω	65KΩ	86Ω	65KΩ

SHORT WAVE OSCILLATOR COIL

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

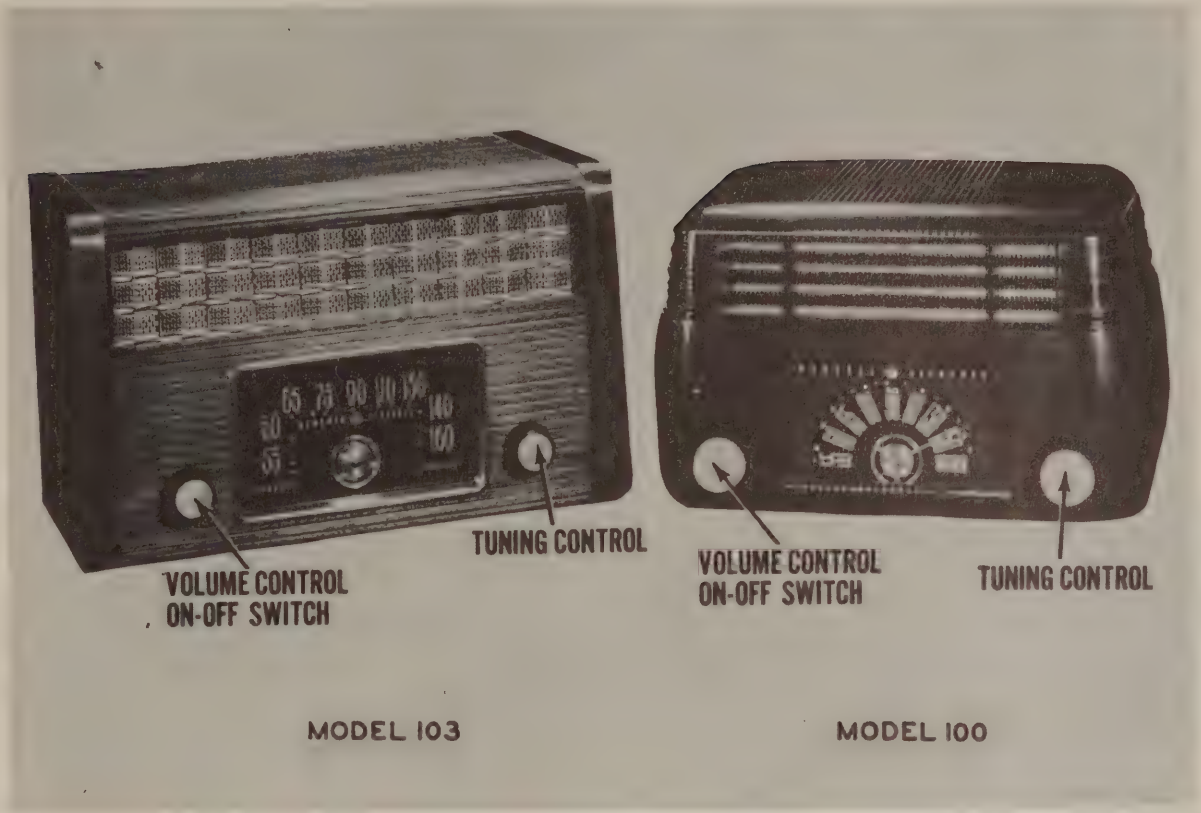
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GENERAL ELECTRIC
MODELS 100, 101, 103, 105



GENERAL ELECTRIC
MODELS 100, 101, 103, 105

GENERAL ELECTRIC MODEL 103

TRADE NAME	General Electric Models 100, 101, 103, 105
MANUFACTURER	General Electric Co., Electronics Dept., Bridgeport, Conn.
TYPE SET	AC - DC Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SG7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING .320 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS

To check pointer, turn tuning mechanism fully counter-clockwise. Pointer should coincide with the first marking at the left of the scale. If it doesn't, remove chassis and slip pointer on cord to correct point. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B- and decrease capacity of dummy to prevent excessive hum modulation. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD.	High side to pin 4 of 12SG7. Low side to B-.	455KC	1500KC	Across voice coil	A1,A2.	Adjust for maximum output.
.05 MFD.	High side to pin 8 of 12SA7. Low side to B-.	"	"	"	A1,A2, A3,A4.	" " " "
50 MMF.	High side to ant. post. Low side to chassis.	1500KC	"	"	A5	Reinstall in cabinet. Trimmers may be reached through the hole in loop assembly. Adjust for maximum output.
50 MMF.	"	"	"	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GEN. ELECT. PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SG7	12SG7	8BK	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	GENERAL ELECTRIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	50	150	RCE-001	FP410*	DY-2x50-150/	EL-352	AF888D	UP6CJ41	▲ Filter
B	50	150			40-25				▲ "
C	40	25							Cath. Bypass
7	.05	600	RCC-045	TP415	S-6-05	TC-15	684-05	DT6S5	Line Filter
8	.01	600	RCC-040	TP410	S-6-01	TC-11	684-01	DT6S1	50L6 Plate Bypass
9	.01	600	RCC-040	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
10	.1	200	RCC-013	TP428	S-4-1	TC-1	484-.1	DT4P1	Feedback
11	.01	600	RCC-040	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
12	.005	600	UCC-039	TP403	S-6-005	TC-25	684-005	DT6D5	" "
13	.05	600	UCC-045	TP415	S-6-05	TC-15	684-05	DT6S5	Conv. Screen Bypass
14	.05	600	UCC-045	TP415	S-6-05	TC-15	684-05	DT6S5	AVC Filter
15	.1	600	UCC-048	TP418	S-6-1	TC-1	684-.1	DT6P1	Line Isolating
16	.01	600	UCC-040	TP410	S-6-01	TC-11	684-01	DT6S1	Ant. Coupling
17	150	500	RCU-113	MC236	M0.5-315	1FM-315	1468-00015	5W5T15	Audio Plate Bypass
18	330	500	RCU-115	MC241	M0.5-33	MS-33	1468-0003	5W5T3	IF Bypass Diode
19	100	500	RCU-112	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	IF Bypass Vol. Cont.
20	47	500	RCU-110	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor

*Combine one 50 MFD. with 20 MFD. for bypass section.

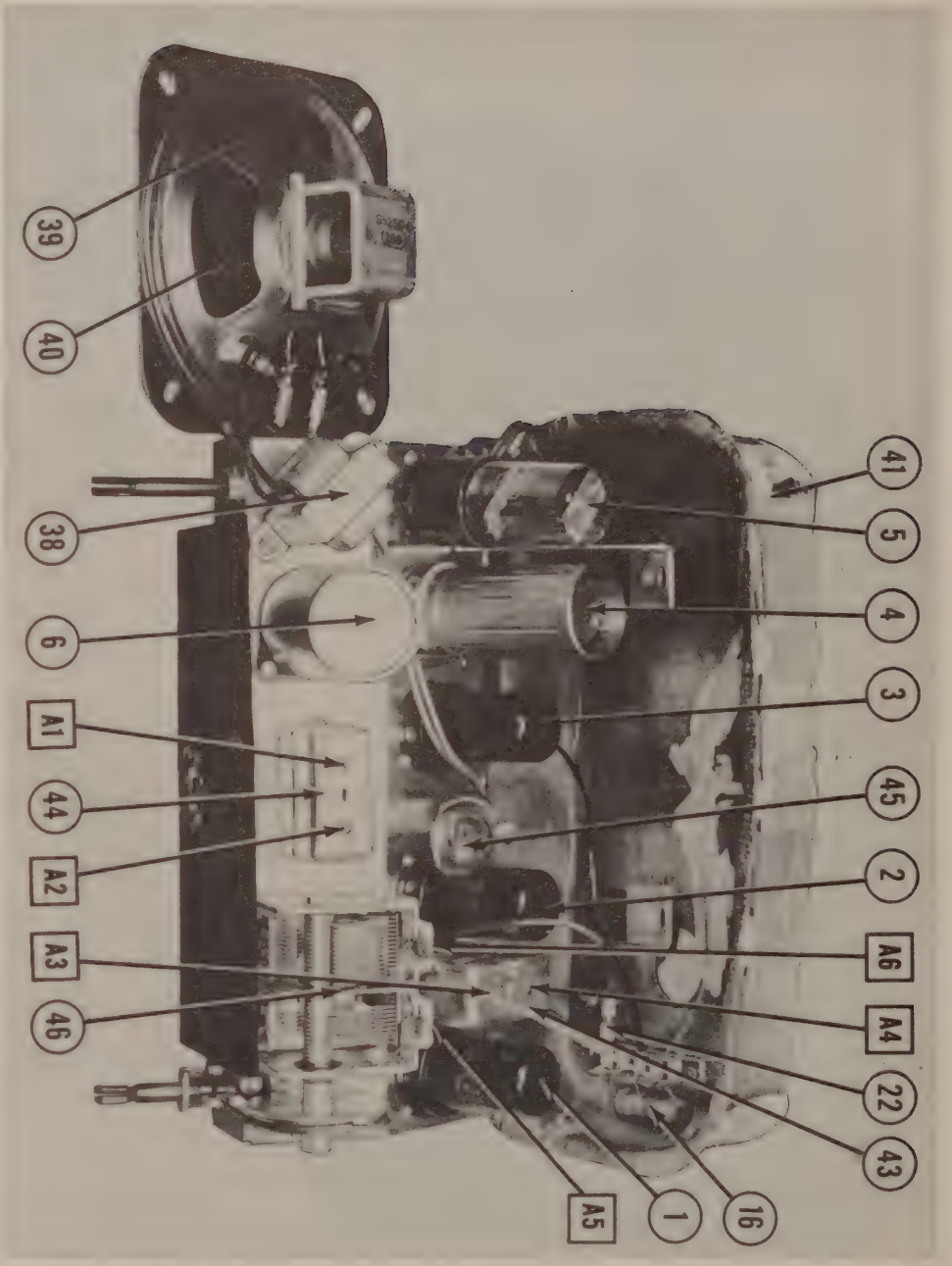
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	GEN. ELECT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	2 Meg.	1	RRC-002	MK403	D1S-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	ASS-3	Attach to 21A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GEN. ELECT. PART No.	IRC PART No.	
22	470Ω	½	URD-041	BTS-470	Yl.-Vi.-Br. Series Ant.
23	10 Meg.	½	URD-145	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
24	22KΩ	½	URD-081	BTS-22K	Red-Red-Or. Osc. Grid
25	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. Line Isolating
26	2.2 Meg.	½	URD-129	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	470Ω	½	URD-041	BTS-470	Yl.-Vi.-Br. Decoupling
28	47KΩ	½	URD-089	BTS-47K	Yl.-Vi.-Or. IF Filter
29	220KΩ	½	URD-105	BTS-220K	Red-Red-Yl. Diode Load
30	1000Ω	½	URD-049	BTS-1000	Br.-Blk.-Red Feedback
31	5.6 Meg.	½	URD-139	BTS-5.6 Meg.	Grn.-Blue-Grn. 1st AF Grid
32	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
33	470KΩ	½	URD-113	BTS-470K	Yl.-Vi.-Yl. Output Grid
34	150Ω	½	URD-029	BW-½-150	Br.-Grn.-Br. Output Cathode
35	39Ω	½	URD-015	BW-½-39	Or.-White-Blk. Feedback
36	1200Ω	2	URF-051	BT-2-1200	Br.-Red-Red Filter
37	18Ω	1	URE-007	BW-1-18	Br.-Gray-Blk. Rectifier Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GEN. ELECT. PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	3100Ω	4.3Ω	150Ω	.45Ω	RTO-001	A-3876‡	T-22845‡		‡Drill new mounting holes

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GEN. ELECT. PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
39	PM	4.3Ω	ROP-005	Mod. P5-X		
	CONE DIA.	VC DIA.				
40	5¼"	½"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

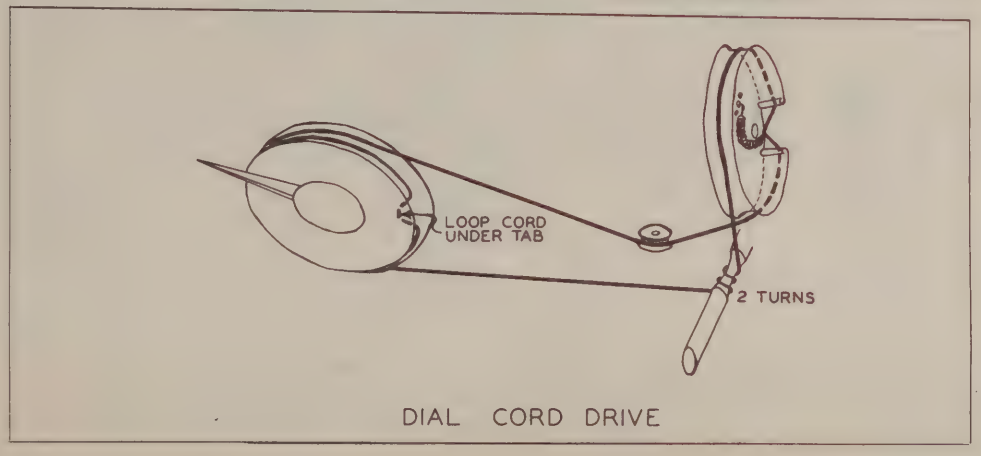
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GEN. ELECT. PART No.	MEISSNER PART No.	
41	Loop Ant.	0Ω	1Ω	RLL001		
42	Osc. Coil	.5Ω	7.5Ω	RLC001	14-1040	
43	Input IF	5.5Ω	5.6Ω	RTL001		
44	Output IF	5.8Ω	5.8Ω	RTL002		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GEN. ELECT. PART No.		
45	Cand. Screw	115	.05		UDL-018		Type C7

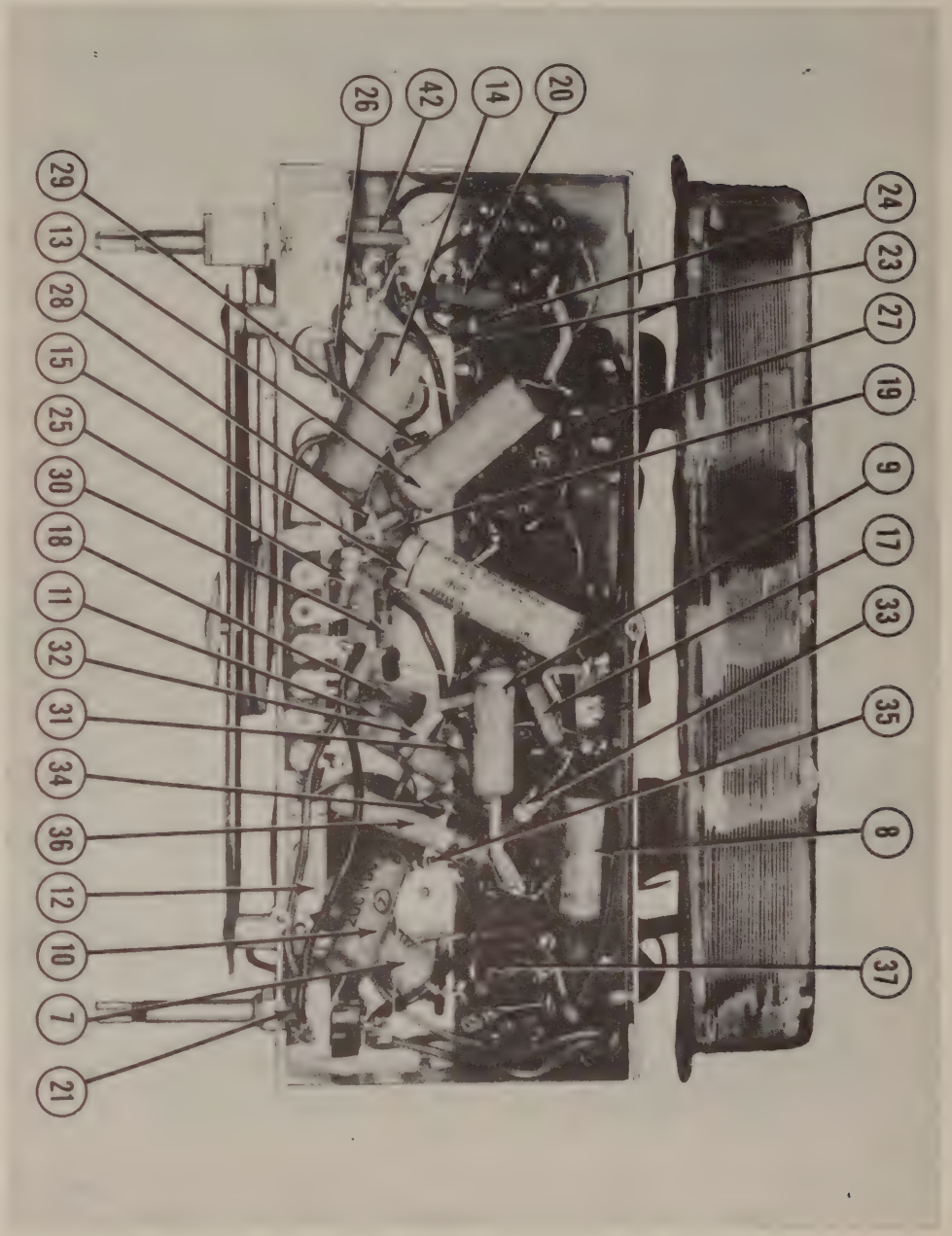
MISCELLANEOUS

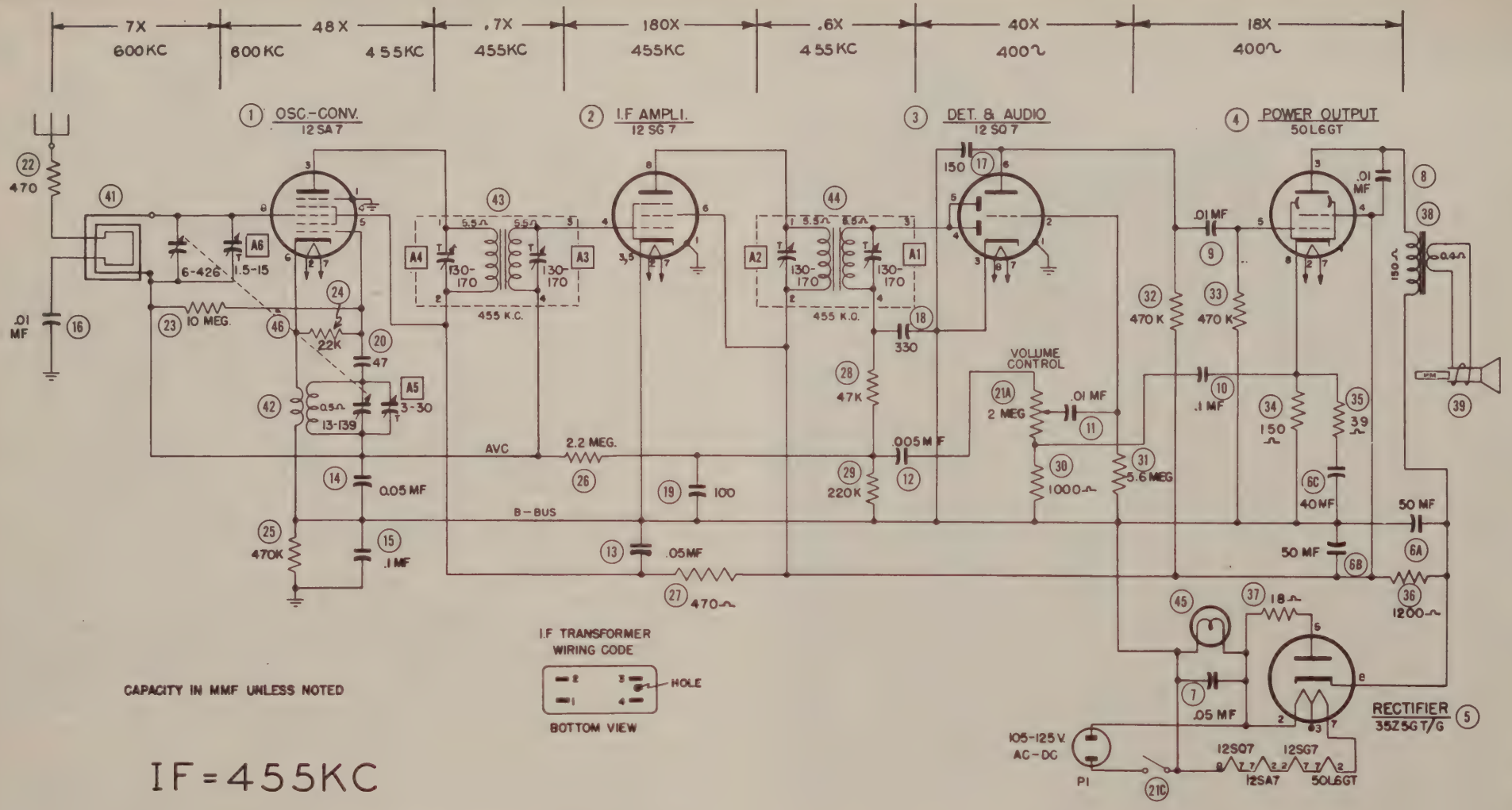
ITEM No.	PART NAME	GEN. ELECT. PART No.	NOTES
46	Tuning Cap.	RCT-001	2 Gang Variable Cap.
	Cabinet	RAV-002	Brown Plastic (Model 100)
	"	RAU-003	Ivory " (" 101)
	Escutcheon	RDE-001	Dial Scale (Models 103, 105)
	Knob	RDK-001	Control (Model 101)
	"	RDK-004	" (Model 103, 105)
	"	RDK-006	" (Model 100)
	Pointer	RDP-002	Dial Scale
	Scale	RDS-001	" " (Models 100,101)
	"	RDS-002	" " (" 103,105)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





CAPACITY IN MMF UNLESS NOTED

IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V	23V. AC	94V. DC	94V. DC	-.15V. DC	0V	12V. AC	-.35V. DC
2	12SG7	0V	23V. AC	0V	-35V. DC	0V	98V. DC	33V. AC	98V. DC
3	12SQ7	0V	-.4V. DC	0V	-.25V. DC	-.25V. DC	48V. DC	12V. AC	0V
4	50L6GT	0V	86V. AC	118V. DC	98V. DC	0V	0V	33V. AC	6.2V. DC
5	35Z5GT	0V	117V. AC	110V. AC	0V	116V. AC	117V. AC	86V. AC	125V. DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

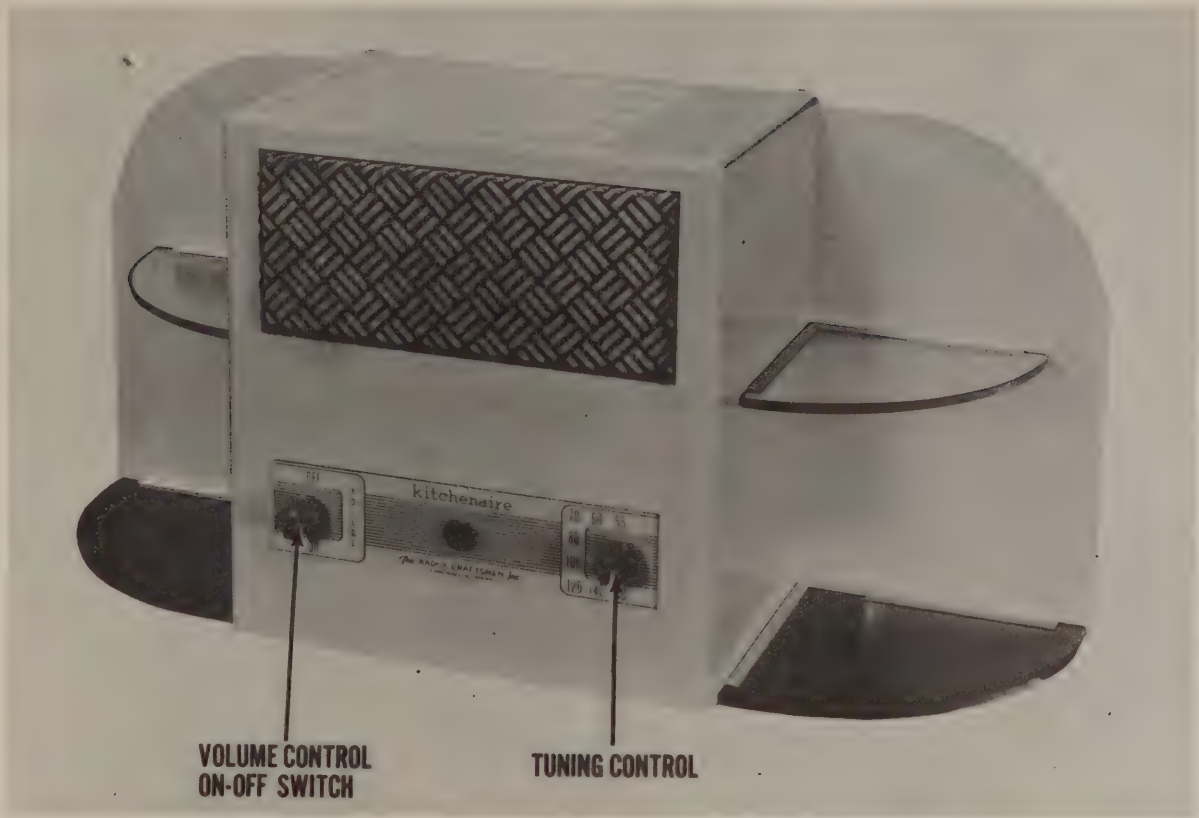
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	490K Ω	20 Ω	200K Ω	200K Ω	19K Ω	.5 Ω	11 Ω	1.5 MEG
2	12SG7	490K Ω	20 Ω	0 Ω	1.5 MEG	0 Ω	200K Ω	28 Ω	200K Ω
3	12SQ7	490K Ω	5 MEG	0 Ω	250K Ω	250K Ω	670K Ω	11 Ω	0 Ω
4	50L6GT	INF	50 Ω	200K Ω	200K Ω	400K Ω	INF	28 Ω	130 Ω
5	35Z5GT	INF	57 Ω	60 Ω	INF	75 Ω	57 Ω	50 Ω	200K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-13

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



KITCHENAIRE
5 TUBE RADIO

KITCHENAIRE
5 TUBE RADIO

KITCHENAIRE 5 TUBE RADIO

TRADE NAME	Kitchenaire 5 Tube Radio
MANUFACTURER	The Radio Craftsmen, Inc., 1341 S. Michigan Ave., Chicago, Ill.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC
TUNING RANGE—BROADCAST	550-1600KC RATING .250 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to 200 MMF to prevent excessive hum modulation.
200 MMF.	High side to ant. clip. (with red dot). Low side to ground clip.	1600KC	"	"	A5	Adjust for maximum output.
200 MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		KITCHENAIRE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	KITCHENAIRE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	20	150		2N509	DHN-2x20-150	TA-220	PRSA150-20-20	EZ2215	Filter - Red
B	20	150							" - "
7	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.02	200		TP423	S-4-02	TC-12	484-02	DT4S2	3516 Plate Bypass
9	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
11	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	Line Isolating
13	400	500		MC243	MO.5-34	1FM-34	1468-0004	5W5T4	Audio Plate Bypass
14	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	IF Bypass Vol. Cont.
15	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	KITCHENAIRE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M26	41	SW-A	" " " " "

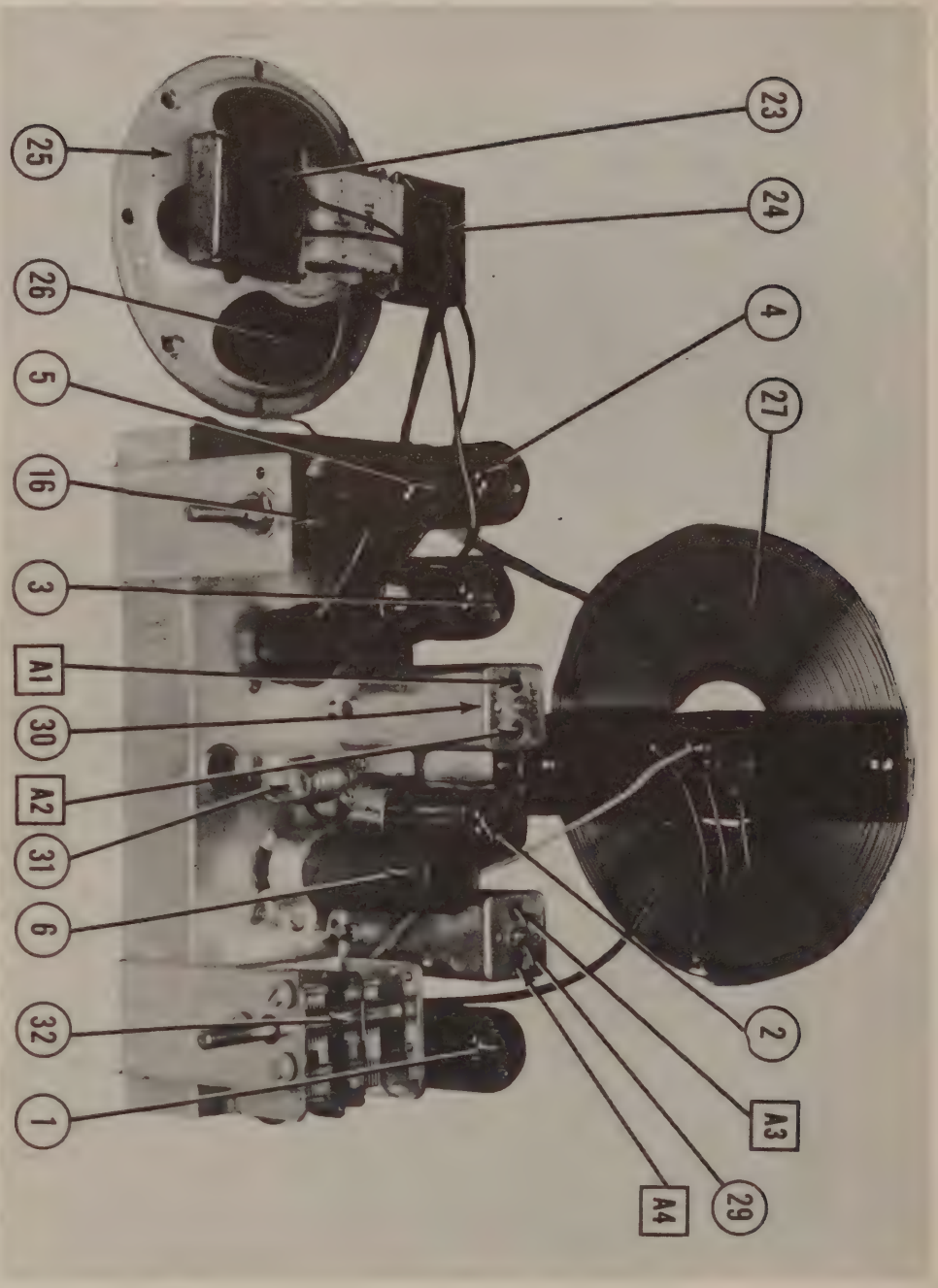
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	KITCHENAIRE PART No.	IRC PART No.	
17	20KΩ	½		BTS-22K	Red-Blk.-Or. Osc. Grid
18	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
19	5 Meg.	½		BTS-4.7 Meg.	Grn.-Blk.-Grn. 1st AF Grid
20	270KΩ	1		BTA-270K	Red-Vi.-Yl. 1st AF Plate Load
21	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
22	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000~)	KITCHENAIRE PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
23	59 MA	485Ω	6.5 Henries		C-1355‡	T-20C52†	†Bend mounting tabs down, file out slots and mount on original bracket. ‡Solder to original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		KITCHENAIRE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
24	17002	4Ω	180Ω	.82Ω		A-3876*	T-22S47*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			KITCHENAIRE PART No.	JENSEN PART No.		
25	FIELD PM	VC IMP. 4Ω	52M1	ST-105 Mod. P5-X		
26	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	KITCHENAIRE PART No.	MEISSNER PART No.	
27	Loop Ant.	0Ω	1.5Ω			
28	Osc. Coil		5.5Ω		14-1040	
29	Input IF	18.5Ω	19Ω	5B001	16-6660	
30	Output IF	16Ω	16Ω	5B004	16-6667	

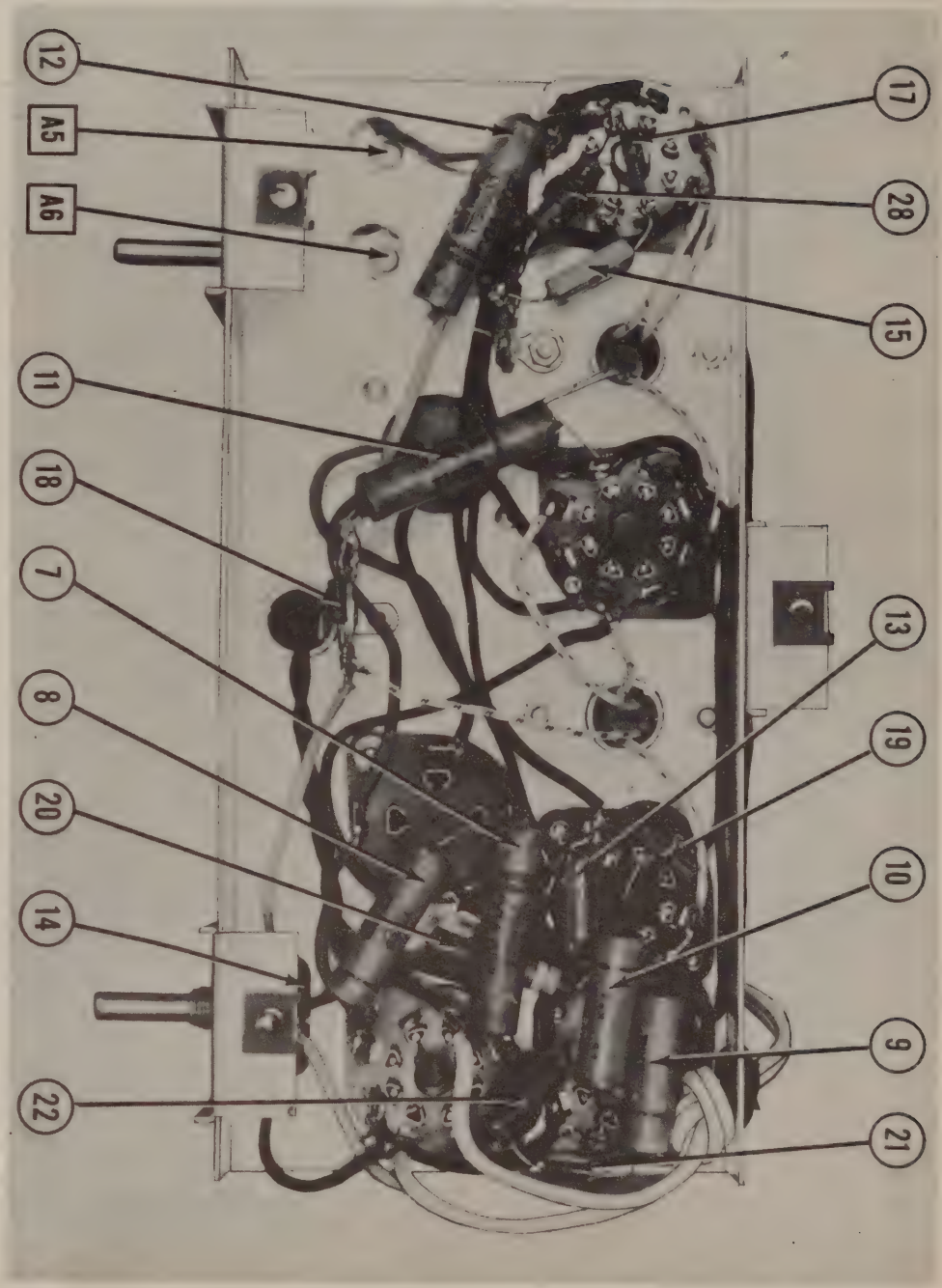
DIAL LIGHT

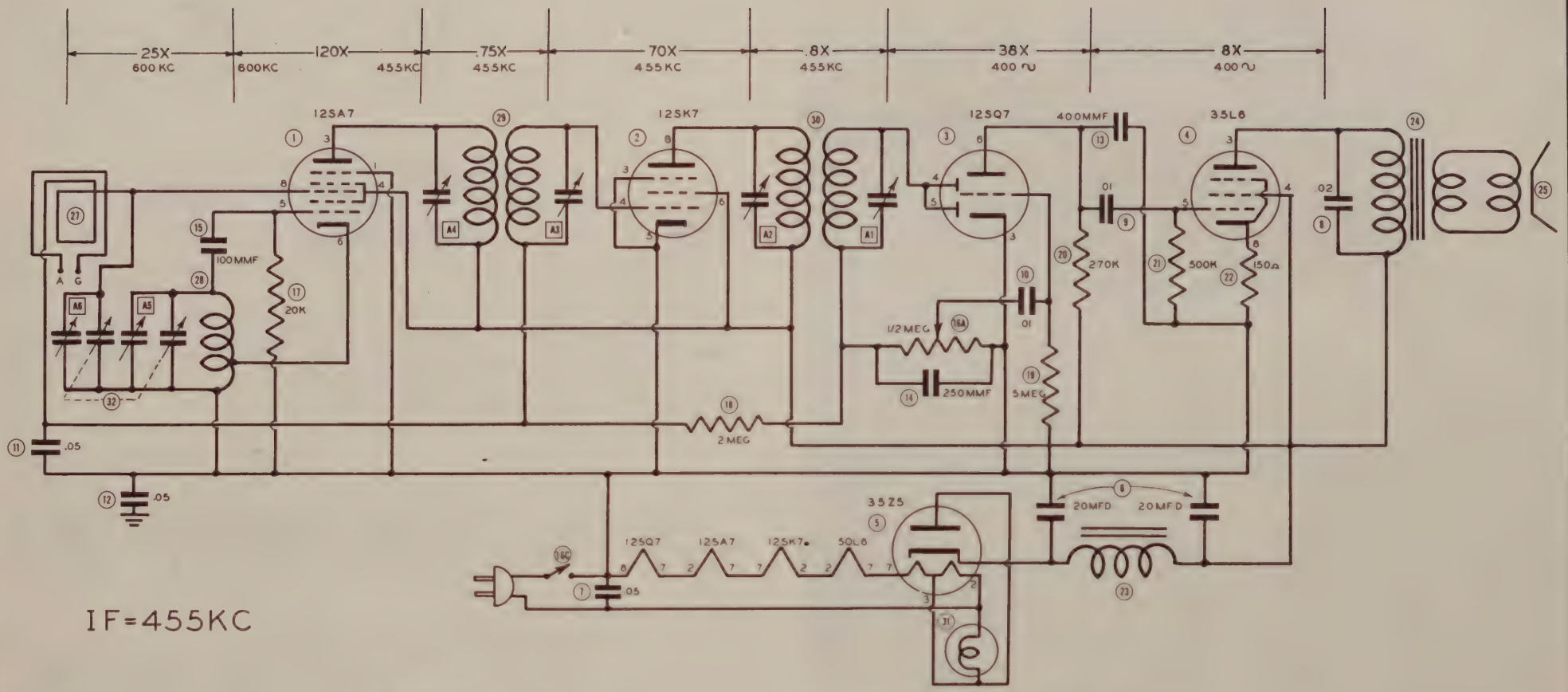
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					KITCHENAIRE PART No.		
31	Screw	6-8	0.15	Brown			Type 40

MISCELLANEOUS

ITEM No.	PART NAME	KITCHENAIRE PART No.	NOTES
32	Tuning Cap.		2 Gang Variable Cap.

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	13V.AC	87V.DC	87V.DC	-4.2V.DC	0V.	26V.AC	-4.5V.DC
2	12SK7GT	0V.	38.8V.AC	0V.	-.55V.AC	0V.	87V. DC	26V.AC	87V.DC
3	12SQ7GT	0V.	-.7V. DC	0V.	-.7V.DC	-.7V. DC	55V. DC	0V. AC	0V.
4	35L6GT	0V.	38.8VAC	82 V. DC	87V.DC	0V.	-.7V. DC	81V.AC	5.2V. DC
5	35Z5GT	0V.	117V.AC	112V.AC	0V.	112V.AC	0V.	81V.AC	117V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	9 Ω	13.5 Ω	150K Ω	1 MEG Ω	23K Ω	.5 Ω	26 Ω	3 MEG Ω
2	12SK7GT	0 Ω	39 Ω	0 Ω	5 MEG Ω	0 Ω	500K Ω	26 Ω	150K Ω
3	12SQ7GT	0 Ω	8 MEG Ω	0 Ω	1 MEG Ω	150K Ω	4.2K Ω	3.5 Ω	0 Ω
4	35L6GT	INF	39 Ω	150K Ω	150K Ω	650K Ω	500K Ω	70 Ω	140 Ω
5	35Z5GT	INF	100 Ω	99 Ω	0 Ω	99 Ω	0 Ω	70 Ω	150K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MODELS 500BI, 500BW, 500DI, 500DW

MAGUIRE MODEL 500BW

TRADE NAME	Maguire Models 500BI, 500BW, 500DI, 500DW.
MANUFACTURER	Maguire Industries Inc., W. Putnam Ave., Greenwich, Conn.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING .235 Amps. @ 117V AC
TUNING RANGE—BROADCAST	530-1620KC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	High freq. end (Variable fully open).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF.	High side to ant. lead. Low side to B-.	1620KC	"	"	A5	" " " "
"	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MAGUIRE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES: LOCK-IN EQUIV.	INSTALLATION NOTES: MIN. EQUIV.
1	Converter	12SA7GT	12SA7GT	8AD	14Q7	12BE6
2	IF Amp.	12SK7GT	12SK7GT	8N	14A7/12B7	12BA6
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	14B6	12AT6
4	Power Output	50L6GT	50L6GT	7AC	50A5	50B5
5	Rectifier	35Z5GT	35Z5GT	6AD	35Y4	35W4

Any combination of the above tubes may have been used in these receivers.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAGUIRE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		2N520	M-50+30-150	TA-530	PRSA150-40-40	BRD3515	Filter - Red
B	30	150							" - Blue
7	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
9	.01	200		TP421	S-4-01	TC-11	484-01	DT4S1	50L6 Plate Bypass
10	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
12	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Line Isolating
13	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	.01	200		TP421	S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
15	250	500		MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
16	100	500		MC235	M0.5-31	1FM-31	1468-0001	5W5T1	IF Bypass Vol. Cont.
17	100	500		MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAGUIRE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	1		MR48	D13-133	M-50-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

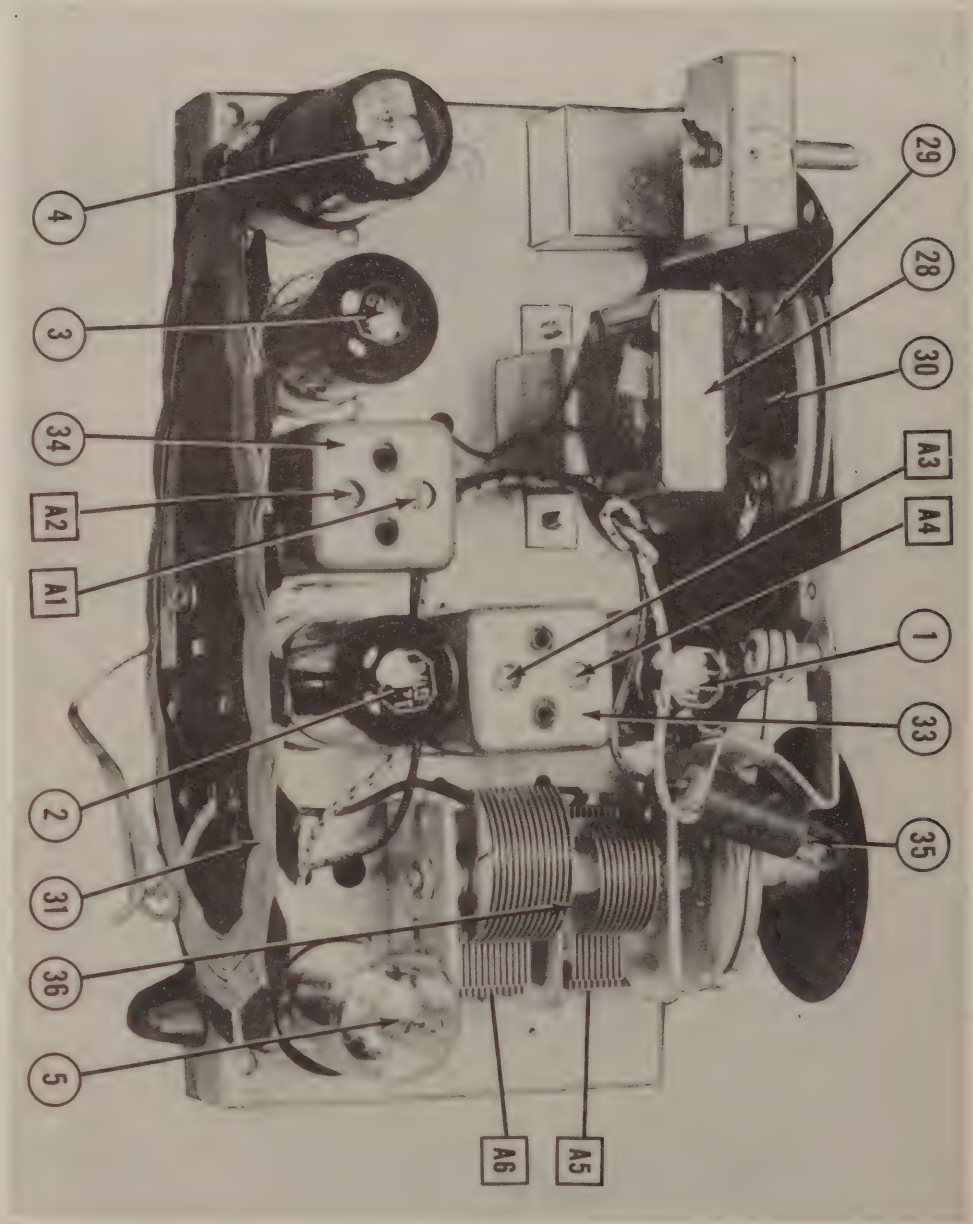
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAGUIRE PART No.	IRC PART No.	IDENTIFICATION CODES
19	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
20	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
22	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
25	1500Ω	2		BT-2-1500	Br.-Grn.-Red Filter
26	27Ω	½		BW-½-27	Red-Vi.-Blk. Rectifier Ballast
27	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolating - See Note 1

Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MAGUIRE PART No.	STANCOR PART No.	THORDARSON PART No.		INSTALLATION NOTES
28	1350Ω	2.8Ω	200Ω	.42Ω	B-20371-1	A-3876*	T-14S82*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA MAGUIRE PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
29	FIELD PM	VC IMP. 2.8Ω	C-20354-1	ST-113 Mod. P4-X		
30	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.			

R F COILS

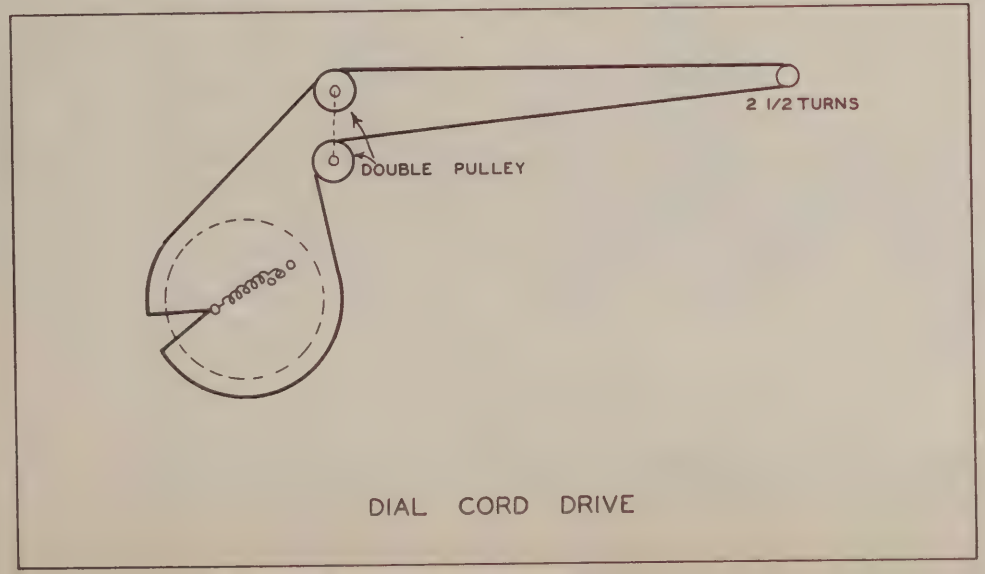
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MAGUIRE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
31	Loop Ant.	0Ω	1Ω	B14123		
32	Osc. Coil		5.5Ω	03963	14-1040	
33	Input IF	23.8Ω	23.8Ω	03964	16-6658	
34	Output IF	20Ω	20Ω	03965	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA MAGUIRE PART No.		INSTALLATION NOTES
35	Bayonet	6-8	0.15	Brown			Type 47

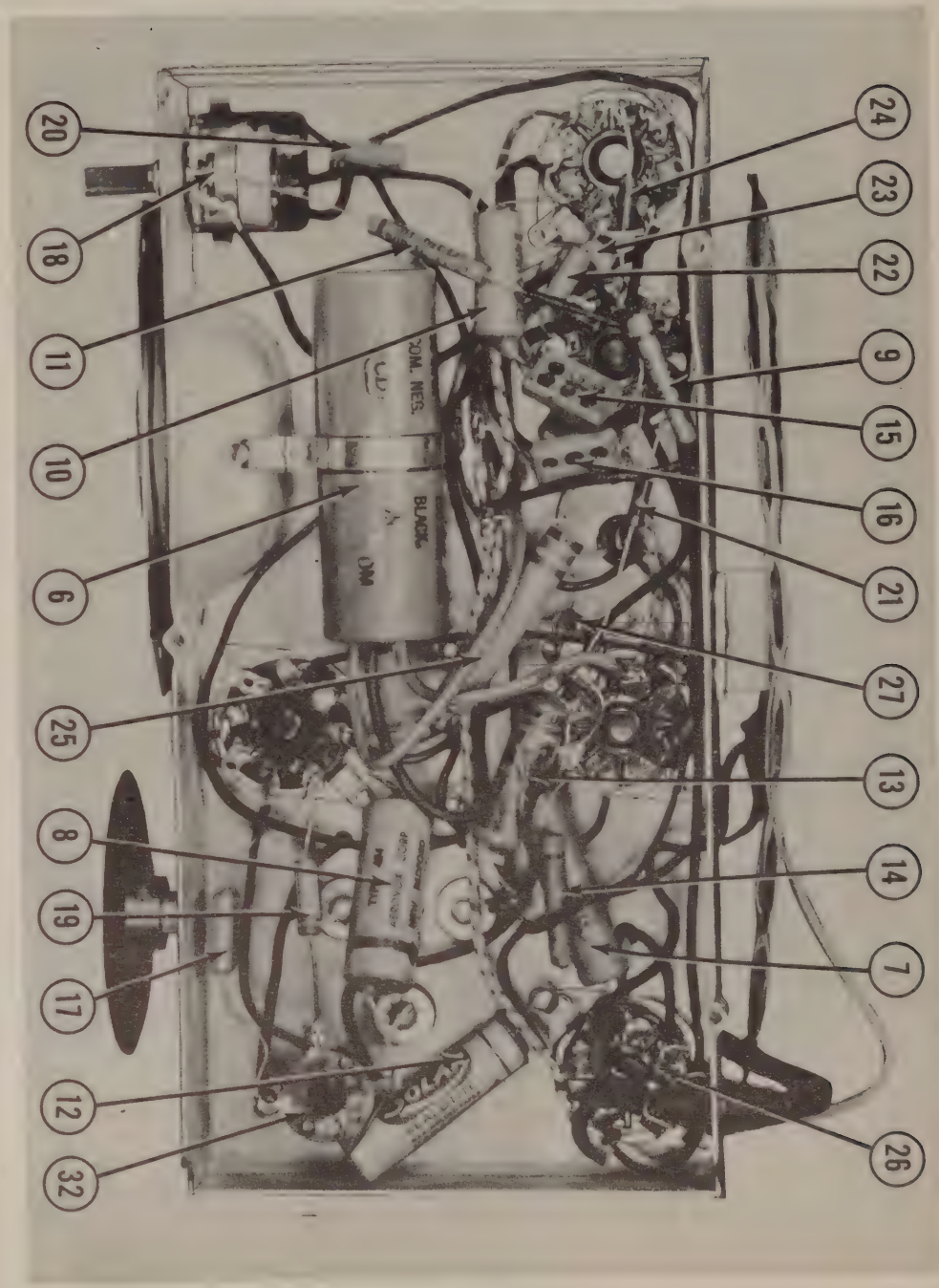
MISCELLANEOUS

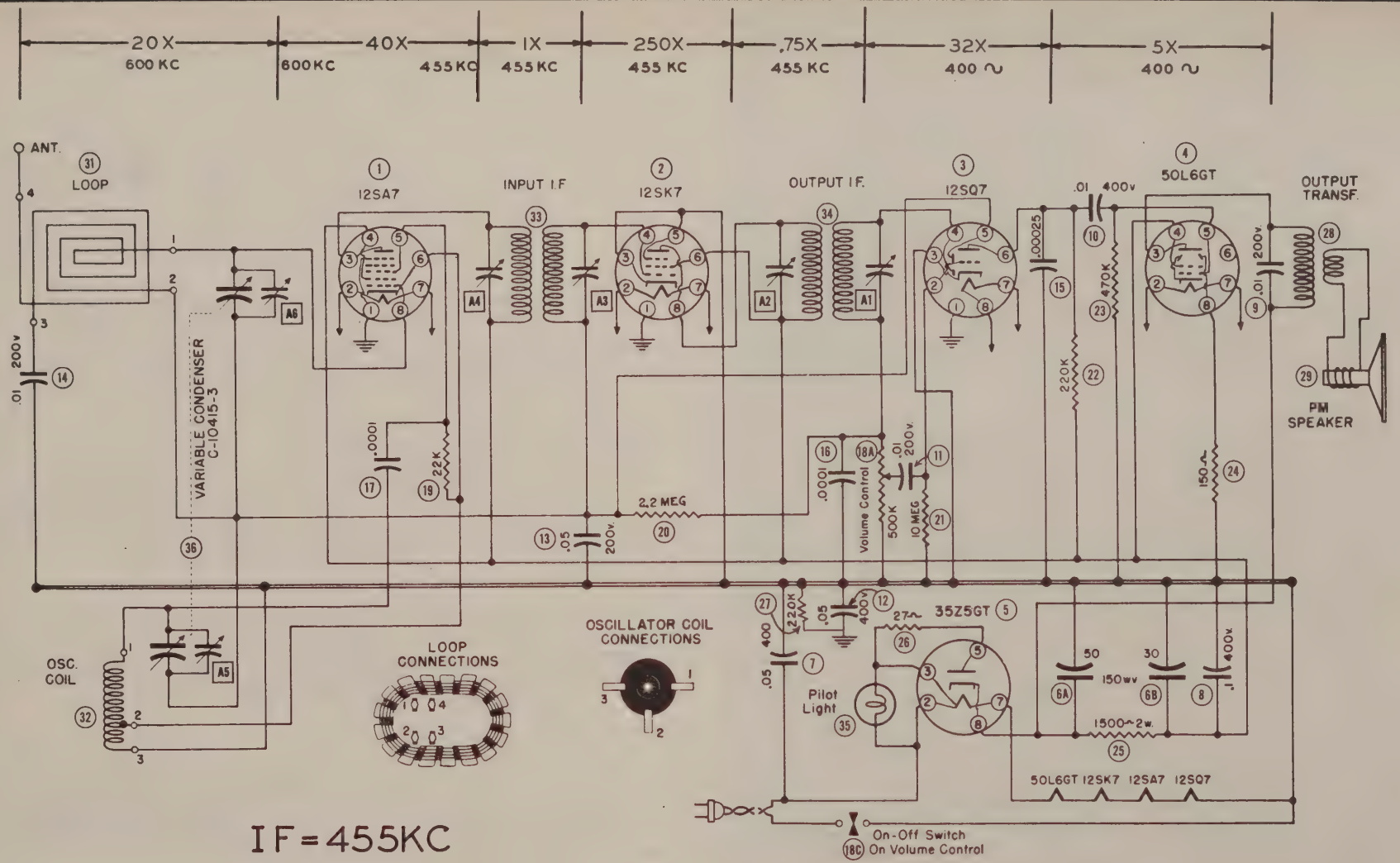
ITEM No.	PART NAME	MAGUIRE PART No.	NOTES
36	Tuning Cap.	C-10415-3	2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V	23.5VAC	82V.DC	82V.DC	-5.6V.DC	0V	11.5VAC	-.6V. DC
2	12SK7GT	0V	34.8VAC	0V	-.6V. DC	0V	82V. DC	23.5 VAC	82V.DC
3	12SQ7GT	0V	-.7V. DC	0V	-.5V. DC	-.6V. DC	65V. DC	11.5V.AC	0V
4	50L6GT	0V	88V. AC	110V. DC	82V.DC	0V	-.6V. DC	34.8VAC	5.8V. DC
5	35Z5GT	0V	117V. AC	113V. AC	0V	112VAC	0V	88V.AC	117V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	205KΩ	23Ω	70KΩ	70KΩ	20.5KΩ	.5Ω	11.5Ω	2.7MEG
2	12SK7GT	205KΩ	34Ω	0Ω	2.7MEG	0Ω	70K	23Ω	70KΩ
3	12SQ7GT	205KΩ	10 MEG	0Ω	540KΩ	2.7 MEG	290KΩ	11.5Ω	0Ω
4	50L6GT	205KΩ	82Ω	70KΩ	70KΩ	460KΩ	2.7MEG	34Ω	155Ω
5	35Z5GT	INF	110Ω	107Ω	INF	130Ω	0Ω	82Ω	70KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MAGUIRE
MODELS 561BI, 561BW, 561DI, 561DW

MAGUIRE
MODELS 561BI, 561BW, 561DI, 561DW

MAGUIRE MODEL 561DW

TRADE NAME	Maguire Models 561BI, 561BW, 561DI, 561DW.
MANUFACTURER	Maguire Industries Inc., W. Putnam, Greenwich, Conn.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7/12B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	117 Volts AC-DC
TUNING RANGE—BROADCAST	530-1620KC RATING .230 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 6 of 14Q7. Low side to B-.	455KC	High freq. end. (Tuning mechanism fully clockwise)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF	High side to ant. lead. Low side to B-.	1620KC	"	"	A5	" " " "
"	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MAGUIRE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES: OCTAL EQUIV.	INSTALLATION NOTES: MIN. EQUIV.
1	Converter	14Q7	14Q7	8AL	12SA7	12BE6
2	IF Amp.	14A7/12B7	14A7/12B7	8V	12SK7	12BA6
3	Det.-AVC-AF	14B6	14B6	8W	12SQ7	12AT6
4	Power Output	50A5	50A5	6AA	50L6	50B5
5	Rectifier	35Y4	35Y4	5AL	35Z5	35W4

Any combination of the above tubes may have been used in these receivers.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAGUIRE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		2N520	M-50+30-150	TA-530	PRSA150-40-40	BRD3515	Filter - Red
B	30	150							" - Blue
7	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	50A5 Plate Bypass
9	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
11	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.2	400		TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
13	.1	400		TP421	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
14	250	500		MC240	MO.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
15	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	IF Bypass Vol. Cont.
16	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Capacitor
17	220								Osc. Feedback
18	1500			MC256	MW.5-215	1FM-215	1467-0015	1W5D15	" "
19	68	500		MC230		MS-47	1469-00007	5W5Q7	RF Coupling
20	47	500		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Fixed Trimmer
21	10			MC215	MO.5-41	MS-41	1468-00001	5W5Q1	Ant. Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAGUIRE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch			M26	41	SW-A	" " " " "

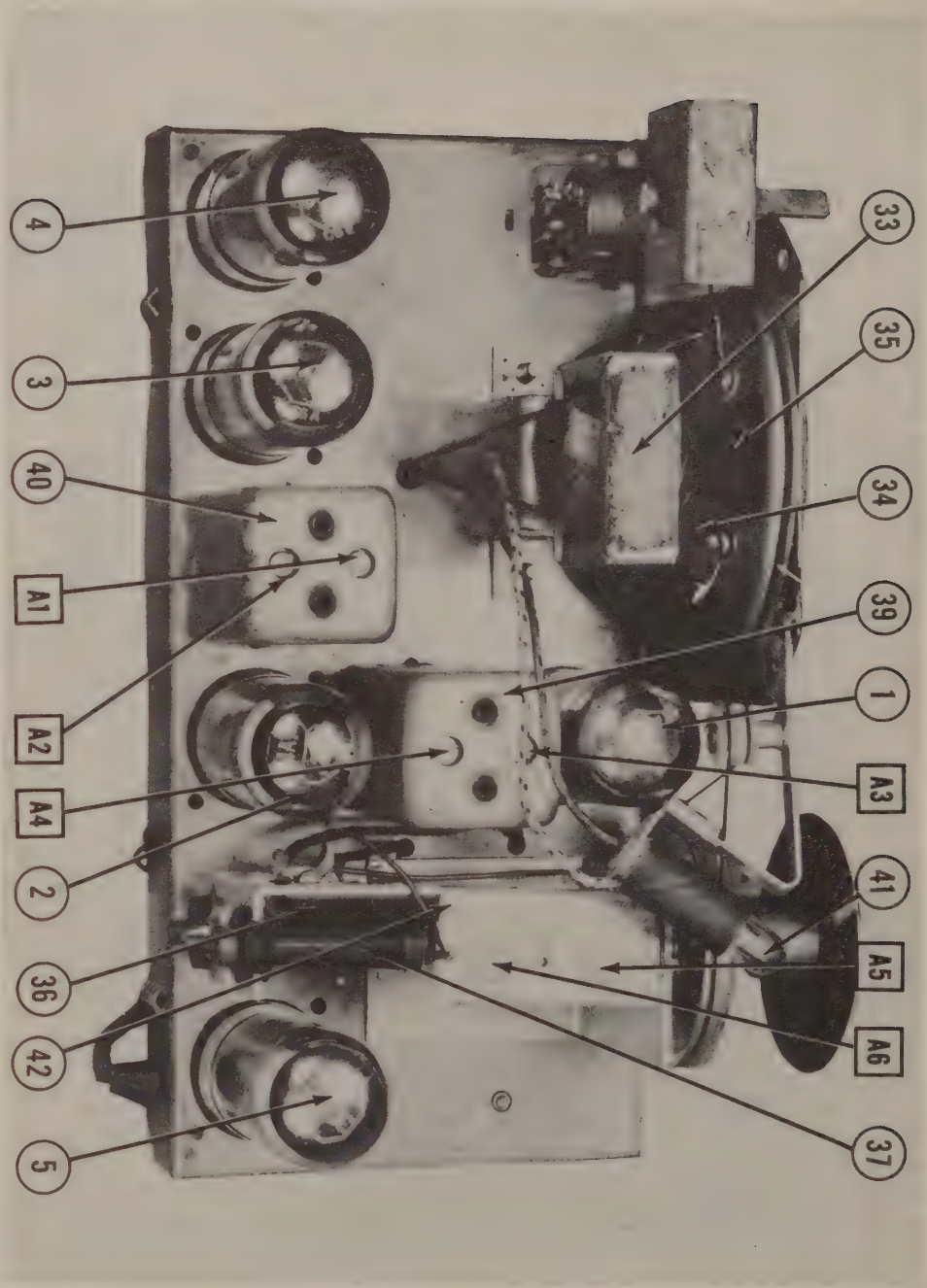
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAGUIRE PART No.	IRC PART No.	IDENTIFICATION CODES
23	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
24	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
25	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
26	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
27	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
28	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
29	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
30	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolating
31	1500Ω	2		BT-2-1500	Br.-Grn.-Red Filter
32	27Ω	½		BW-½-27	Red-Vi.-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MAGUIRE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
33	1350Ω	2.8Ω	200Ω	.42Ω	B-20371-1	A-3876*	T-14S82*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA MAGUIRE PART No.	REPLACEMENT DATA JENSEN PART No.	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	VC IMP.		ST-113		
34	PM	2.8Ω	C-20354-1	Mod. P4-X		
	CONE DIA.	VC DIA.				
35	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

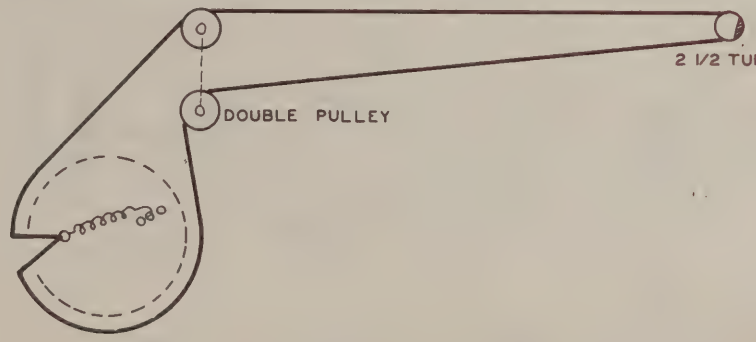
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MAGUIRE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
36	Ant. Coil		3Ω			Items 36, 37 ganged together and slug tuned, may be obtained as complete unit under part #04516.
37	Osc. Coil		6Ω			
38	RF Choke	32Ω		04650		
39	Input IF	23.8Ω	23.8Ω	03964	16-6658	
40	Output IF	20Ω	20Ω	03965	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA MAGUIRE PART No.	REPLACEMENT DATA	INSTALLATION NOTES
41	Bayonet	6-8	0.15	Brown			Type 47

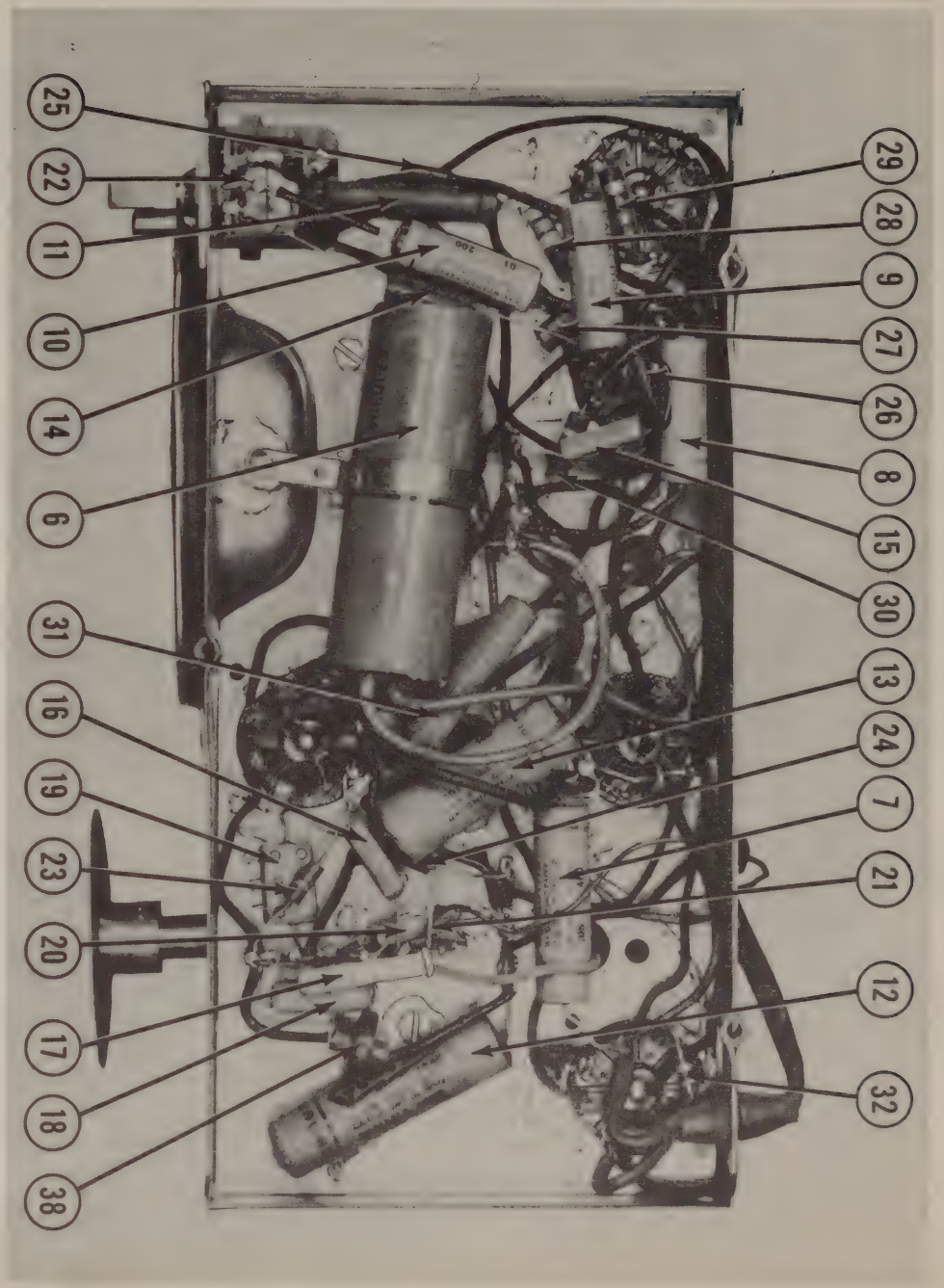
MISCELLANEOUS

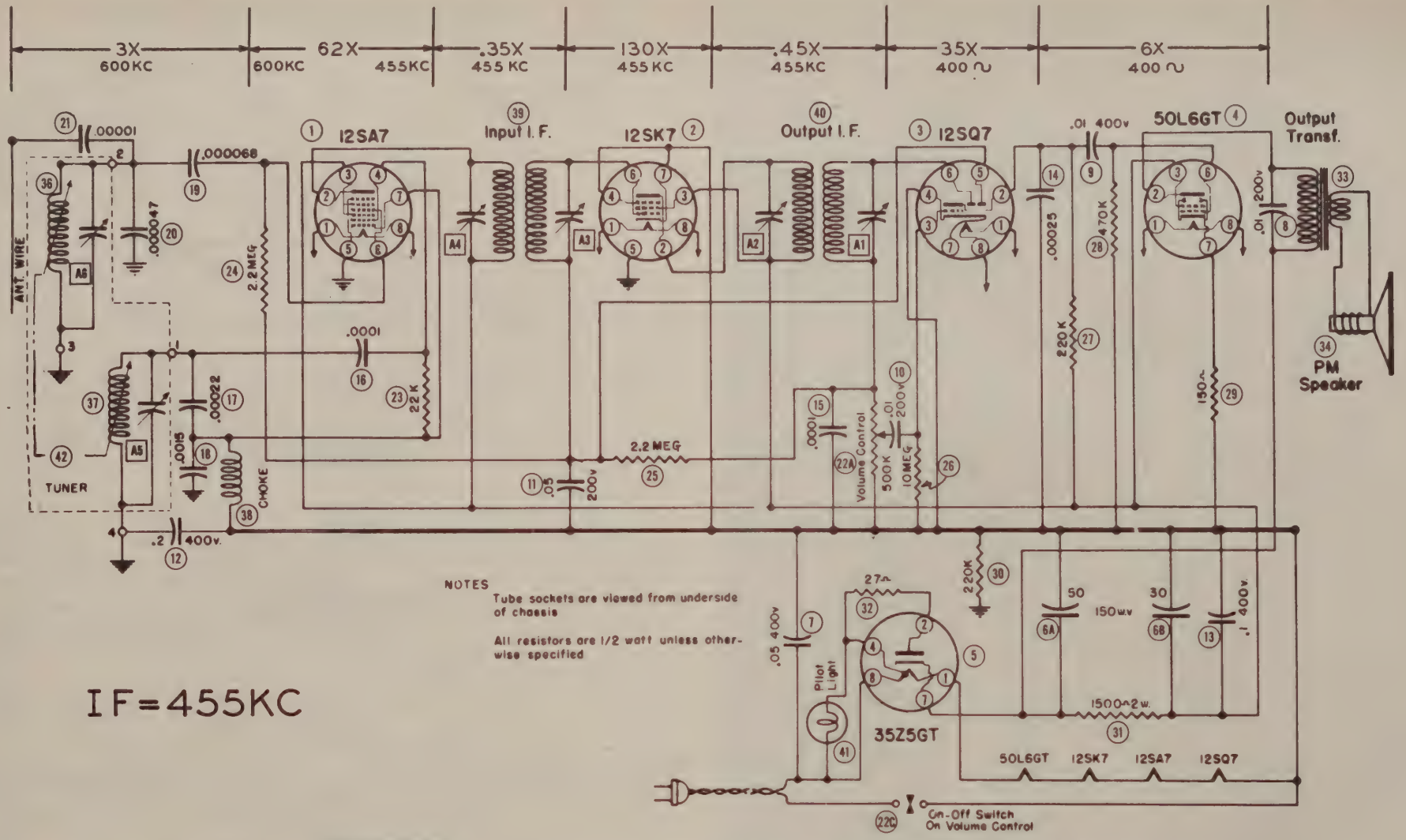
ITEM No.	PART NAME	MAGUIRE PART No.	NOTES
42	Tuning Assby.	04516	Complete unit.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25.5VAC	82V.DC	82V. DC	-5.8V.DC	0V	-.25V.DC	.3V. DC	13V. AC
2	14A7/12B7	37.2VAC	82V. DC	82V. DC	0V	0V	-.4V. DC	0V	25.5VAC
3	14B6	0V	62V.DC	-.65V.DC	0V	-.4V. DC	-.6V. DC	0V	13V. AC
4	50A5	88V. AC	107V.DC	82V.DC	0V	-.4V. DC	.02V.DC	5.2V.DC	37.2VAC
5	35Y4	117V.AC	112V.AC	0V	114V.AC	0V	0V	114V. DC	88V. AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24.5 Ω	600K Ω	600K Ω	20.5K Ω	200K Ω	5 MEG	30 Ω	12.5 Ω
2	14A7/12B7	36 Ω	600K Ω	600K Ω	0 Ω	200K Ω	2.7 MEG	0 Ω	24.5 Ω
3	14B6	0 Ω	820K Ω	10 MEG	0 Ω	2.7 MEG	440K Ω	.5 Ω	12.5 Ω
4	50A5	82 Ω	600K Ω	600K Ω	0 Ω	2.7 MEG	390K Ω	140 Ω	36 Ω
5	35Y4	110 Ω	132 Ω	INF	107 Ω	INF	0 Ω	600K Ω	82 Ω

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MINERVA
MODEL W-117

MINERVA
MODEL W-117

MINERVA MODEL W117

TRADE NAME	Minerva Model W117 (Tropic Master)
MANUFACTURER	Minerva Corp. of America, 238 William St., New York, N.Y.
TYPE SET	AC-DC 2 Band Superheterodyne Receiver
TUBES(EIGHT)	Types, 6SK7 RF Amp., 6SA7GT Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6SC7GT Inverter, 2-50L6GT Power Output, 25Z6GT Rectifier.
POWER SUPPLY	117 Volts AC-DC — RATING .490 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1620 KC — **SHORT WAVE** 5.5 - 18.0 MC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to chassis. Volume control in maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 6SA7. Low side to chassis.	455KC	BC	High freq. end of dial. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
200 MMF.	High side to ext. ant. Low side to ext. ground.	1600KC	"	1600KC	"	A5	" " " "
"	"	1400KC	"	Tune for maximum output.	"	A6	" " " "
"	"	600KC	"	"	"	A7	Rock dial and adjust for maximum output. Recheck A5 at 1600KC and A6 at 1400KC.
400 ohms	"	18.0MC	SW	18.0MC	"	A8	Adjust for maximum output
"	"	15.0MC	"	Tune for maximum output.	"	A9	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MINERVA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.		6SK7	8N	
2	Converter		6SA7GT	8AD	
3	IF Amp.		6SK7	8N	
4	Det.-AVC-AF		6SQ7	8Q	
5	Inverter		6SC7GT	8S	
6	Power Output		50L6GT	7AC	
7	Power Output		50L6GT	7AC	
8	Rectifier		25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MINERVA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9	40	150		TC48	M-40-150	UT-401	PRS150-40	BR4015	Filter
10	40	150		TC48	M-40-150	UT-401	PRS150-40	BR4015	"
11	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
12	.005	400		TP408	S-6-005	TC-25	484-005	DT6D5	50L6 Plate Bypass
13	.005	400		TP408	S-6-005	TC-25	484-005	DT6D5	" " "
14	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
15	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
16	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Tone Compensation
17	.005	400		TP426	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
18	.25	400		TP430	S-4-25	TC-2	484-.25	DT4P25	RF Bypass Pwr. Supp.*
19	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
20	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Ground Isolation
21	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
22	.005	400		TP408	S-6-005	TC-25	484-005	DT6D5	Cabinet Isolation
23	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Audio Grid Bypass
24	30	500		MC223	MO.5-43	MS-43	1468-00004	5W5Q3	Diode Coupling
25	300	500		MC241	MO.5-33	MS-33	1468-0003	5W5T3	IF Bypass Diode
26	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Capacitor
27	5000	300		MC465	MW.5-25	1FM-25	1467-005	1D5D5	Fixed Padder SW
28	300	500		MC241	MO.5-33	MS-33	1468-0003	5W5T3	RF Coupling

*Not used in all models.

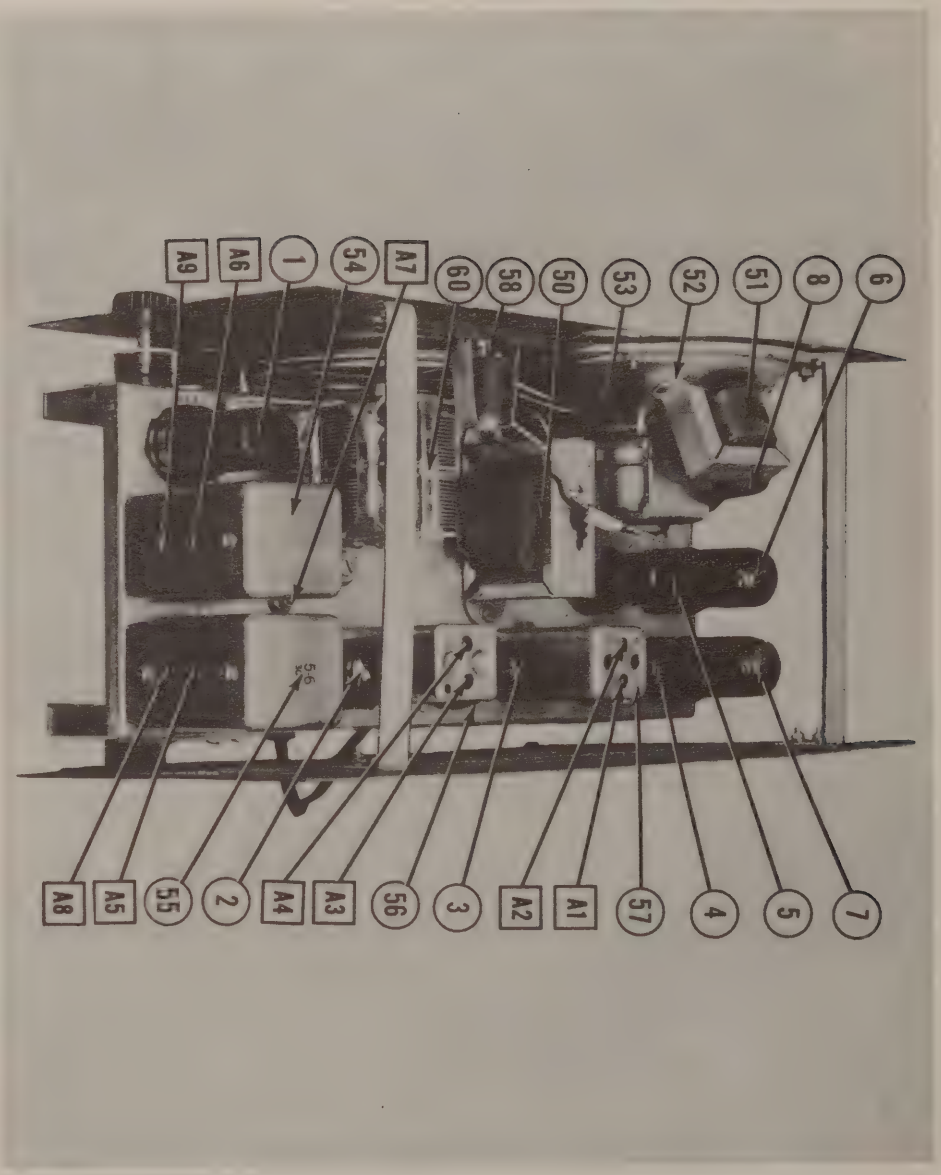
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MINERVA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
29A	500KΩ	1	50-5	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 29A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
30A	500KΩ	1	50-6	MR48	D13-133	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 30A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MINERVA PART No.	IRC PART No.	IDENTIFICATION CODES
31	4700Ω	½		BTS-4700	Yl.-Vi.-Red RF Plate Load
32	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Converter Grid
33	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
34	47KΩ	½		BTS-47K	Yl.-Vi.-Or. IF Filter
35	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. AVC Network
36	2.2 Meg.	½		BTS-2.2 Meg	Red-Red-Grn. Delayed AVC
37	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
38	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
39	4700Ω	½		BTS-4700	Yl.-Vi.-Red Inverter Cathode
40	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Inverter Plate Load
41	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
42	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Inverter Grid
43	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
44	300Ω	½		BW-½-330	Or.-Blk.-Br. Output Cathode
45	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
46	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
47	40Ω	5		AB-50	Line Dropping
48	20Ω	5		AB-25	Pilot Light Shunt
49	25Ω	½		BW-½-22	Red-Grn.-Blk. Delayed AVC

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000)	REPLACEMENT DATA: MINERVA PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	INSTALLATION NOTES
50	118 MA	85Ω	3H		C-9309	T-20C54	

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MINERVA PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
51	7800Ω	1.75Ω	245Ω	.46Ω		A-3823	T-22S47‡		‡Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MINERVA PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
	FIELD	VC IMP.		ST-111†		†Change output transformer to match
52	PM	1.75Ω		Mod. P6-U		3.4Ω voice coil.
	CONE DIA.	VC DIA.				
53	6"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

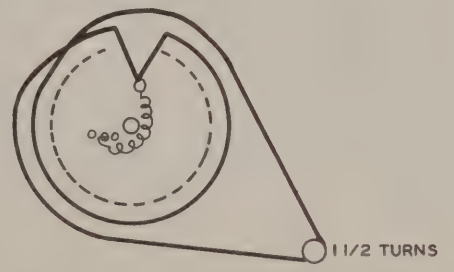
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MINERVA PART No.	REPLACEMENT DATA: MEISSNER PART No.	INSTALLATION NOTES
54A	BC Ant. Coil	22Ω	4.3Ω			
B	SW " "	.4Ω	0Ω			
55A	BC Osc. "		3Ω			
B	SW " "		0Ω			
56	Input IF	16Ω	16Ω		16-5740	
57	Output IF	11Ω	18Ω		16-5742	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: MINERVA PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
58	Bayonet	6-8	0.15	Brown			Type 47

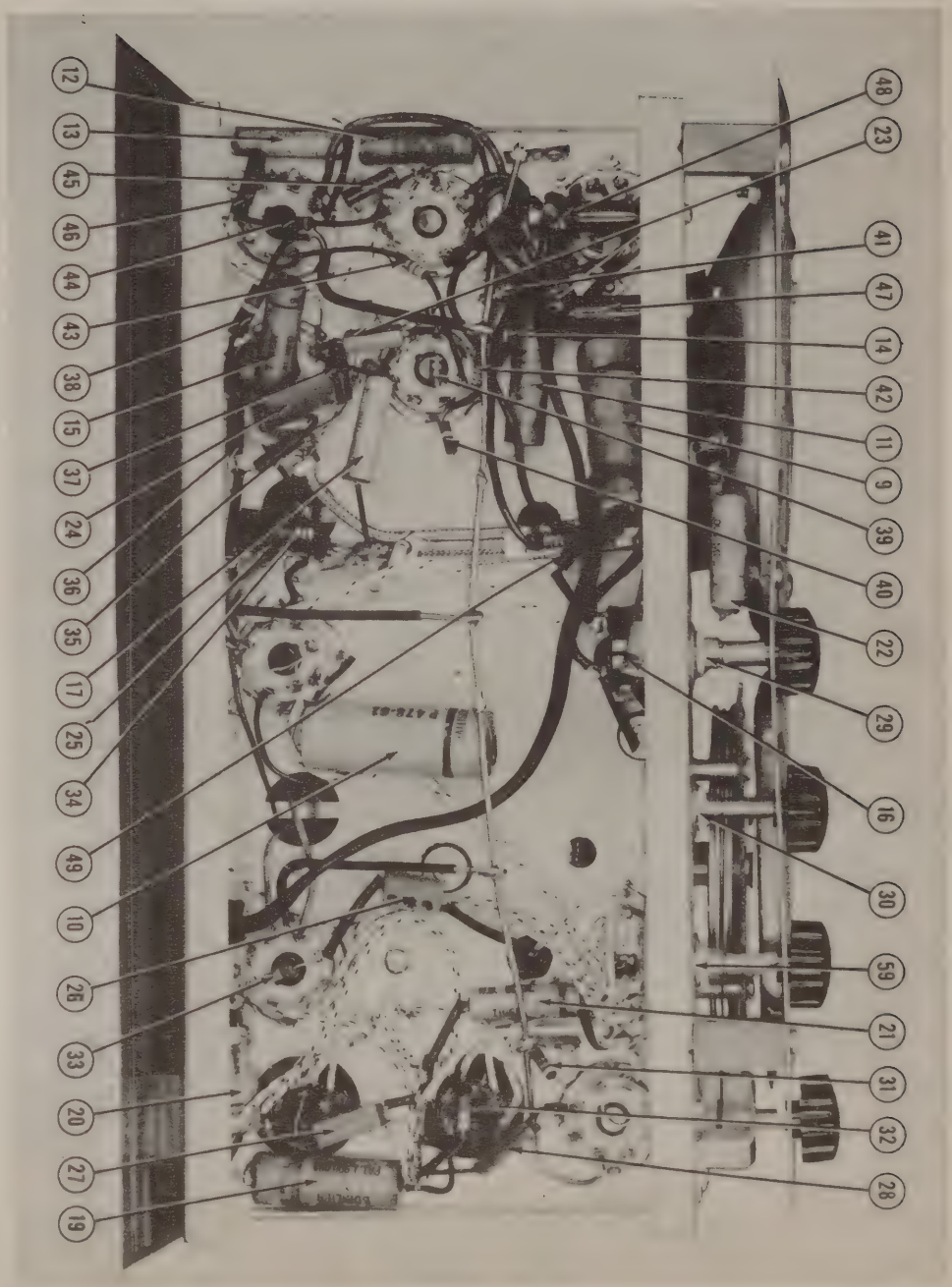
MISCELLANEOUS

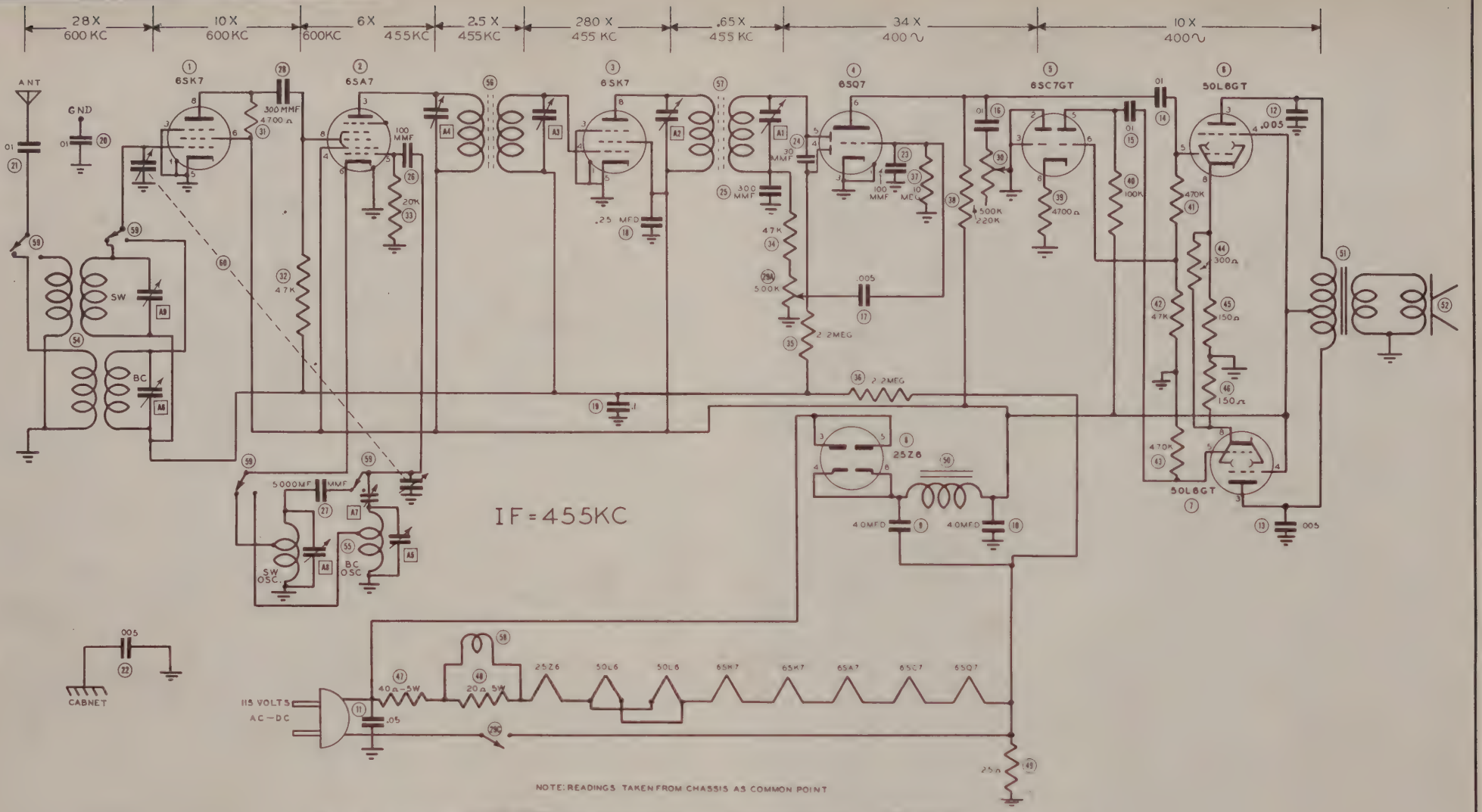
ITEM No.	PART NAME	MINERVA PART No.	NOTES
59	Switch		Band Change
60	Tuning Cap.		2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





NOTE: READINGS TAKEN FROM CHASSIS AS COMMON POINT

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V	24 v. AC	0V	-.65v.DC	0v	0.3v DC	8% A	<8 v. DC
2	6SA7GT	0V	12V. AC	103V.DC	103V.DC	-.07V.DC	0V	18V. AC	-3.5V.DC
3	6SK7	0v	24v. AC	0v	-.65v.DC	0v	0.3V DC	29.8 v.A	-3v. DC
4	6SQ7	0V	-.3V. DC	0V	-2V DC	-15V. DC	60V. DC	6.5V. AC	-3.3V.DC
5	6SC7GT	0v	0v	0v	0v	80V. DC	95v. DC	2v. A	6.5 v. A
6	50L6GT	0V	79V. AC	99V. DC	103V.DC	0V	3v	29.8v.A	5.2 v.
7	50L6GT	0V	79v. AC	99V. DC	103V.DC	0v	0v	29.8v.A	6.8 v. DC
8	25Z6GT	0V	79v. AC	-7 v. AC	1.4v. DC	-7v AC	0V	-0.2v.AC	4 v. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0n	18 n	n	2 MEG	0n	330K n	14 n	95K n
2	6SA7GT	0n	31 n	90K n	90K n	19.5K n	.5 n	34 n	1.9 MEG
3	6SK7	0n	38 n	0n	1 MEG	0n	90K n	4 n	30K n
4	6SQ7	0n	10 MEG	0n	4 MEG	540K n	310K n	27 n	23 n
5	6SC7GT	0n	0n	0n	47K n	190K n	3.8K n	31 n	27 n
6	50L6GT	0n	62 n	90K n	90K n	410K n	INF	41 n	97 n
7	50L6GT	0n	62 n	90K n	90K n	490K n	INF	41 n	112 n
8	25Z6GT	INF	62 n	110 n	90K n	110 n	INF	72 n	90K n

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MONITOR
MODELS TA56M, TW56M

MODELS TA56M, TW56M

MONITOR MODEL TA56M

TRADE NAME	Monitor Model TA56M, TW56M
SUPPLIER	Monitor Equipment Co., 110 E. 42nd St., New York, N.Y.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	117 Volts AC-DC RATING .230 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to B-.	455KC	High freq.end of dial.(Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF.	High side to ext. clip. Low side to chassis.	1620KC	"	"	A5	" " " "
200 MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MONITOR PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter		14Q7	8AL	
2	IF Amp.		14A7	8V	
3	Det.-AVC-AF		14B6	8W	
4	Power Output		50A5	6AA	
5	Rectifier		35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MONITOR PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	15	140		2N509	M-2x15-150	TA-116	PRSA150-20-20	BRL2215	Filter - Red
B	15	120							" - Blue
7	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	Line Isolating
9	.022	200		TP423	S-4-02	TC-12	484-02	DT4S2	50A5 Plate Bypass
10	.022	200		TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
11	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	" "
12	.022	200		TP423	S-4-02	TC-12	484-02	DT4S2	Humbuck
13	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	220	500		MC237	M0.5-32	1FM-32	1466-0002	5W5T2	Audio Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MONITOR PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	1 Meg.	1	B135127-A	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 15A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MONITOR PART No.	IRC PART No.	IDENTIFICATION CODES
16	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AVC Network
17	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
18	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	5 Meg.	½		BTS-4.7 Meg.	Grn.-Blk.-Grn. 1st AF Grid
20	510KΩ	½		BTS-560K	Grn.-Br.-Yl. 1st AF Plate Load
21	4700Ω	½		BTS-4700	Yl.-Vi.-Red Hum Feedback
22	510KΩ	½		BTS-560K	Grn.-Br.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode

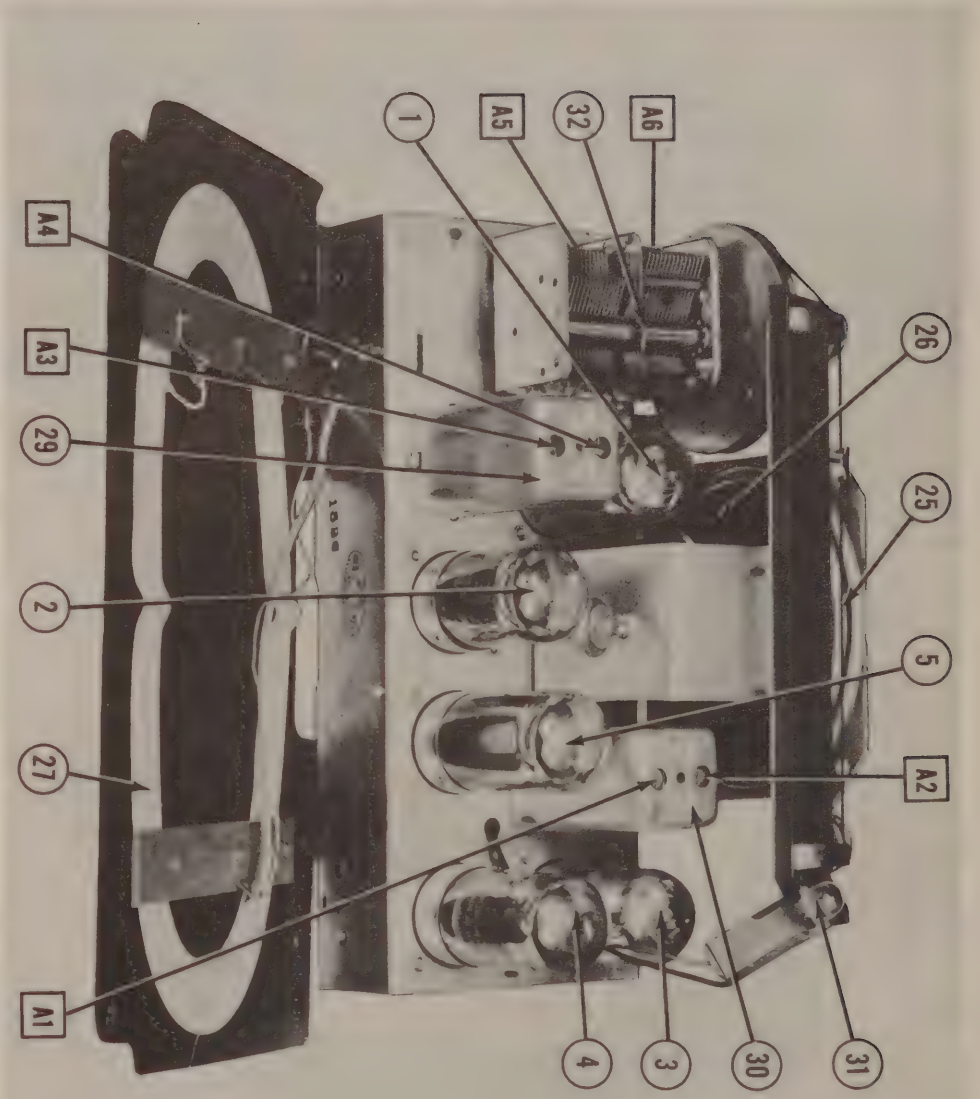
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MONITOR PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
24	2300Ω	4.1Ω	180Ω	.8Ω	B-135077	A-3873	T-22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MONITOR PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.		ST-537		
25	450Ω	4.1Ω	135632	Mod. H4-S		
	CONE DIA.	VC DIA.				
26	4"	1/2"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

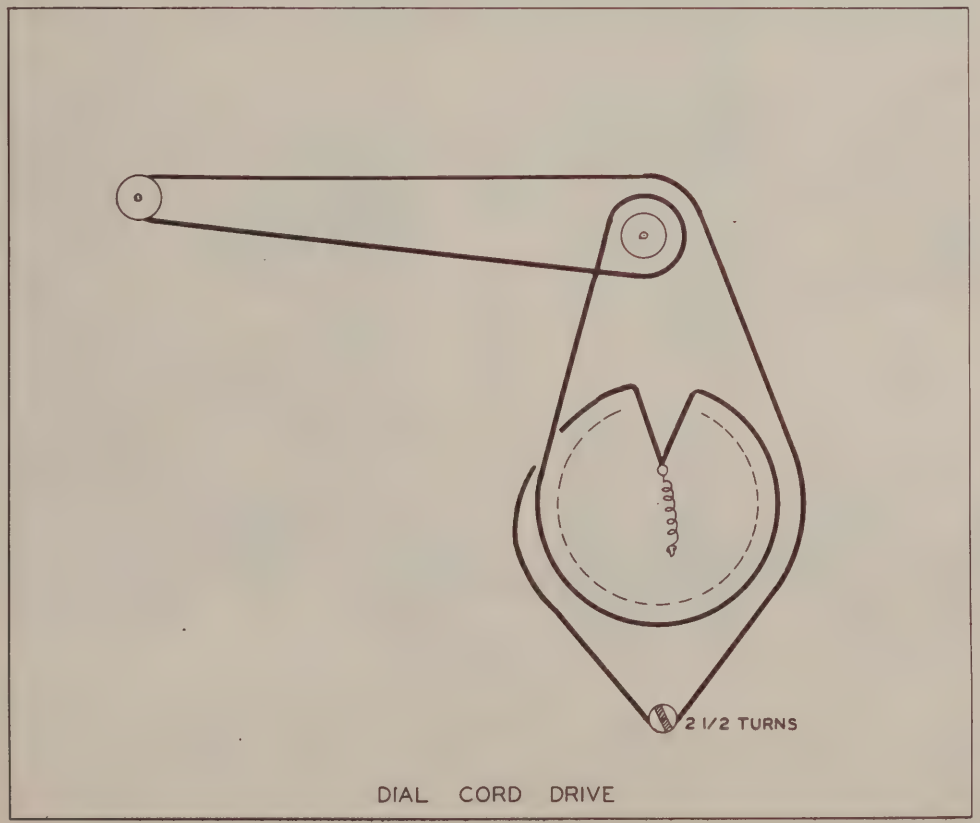
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MONITOR PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
27	Loop Ant.	0Ω	1.3Ω			
28	Osc. Coil	.7Ω	6Ω		14-1040	Add 50 MMFD. cap. from grid to high side tuning cap.
29	Input IF	25Ω	20.3Ω		16-6666	
30	Output IF	22Ω				

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA MONITOR PART No.		INSTALLATION NOTES
31	Bayonet	6-8	0.15	Brown			Type 47

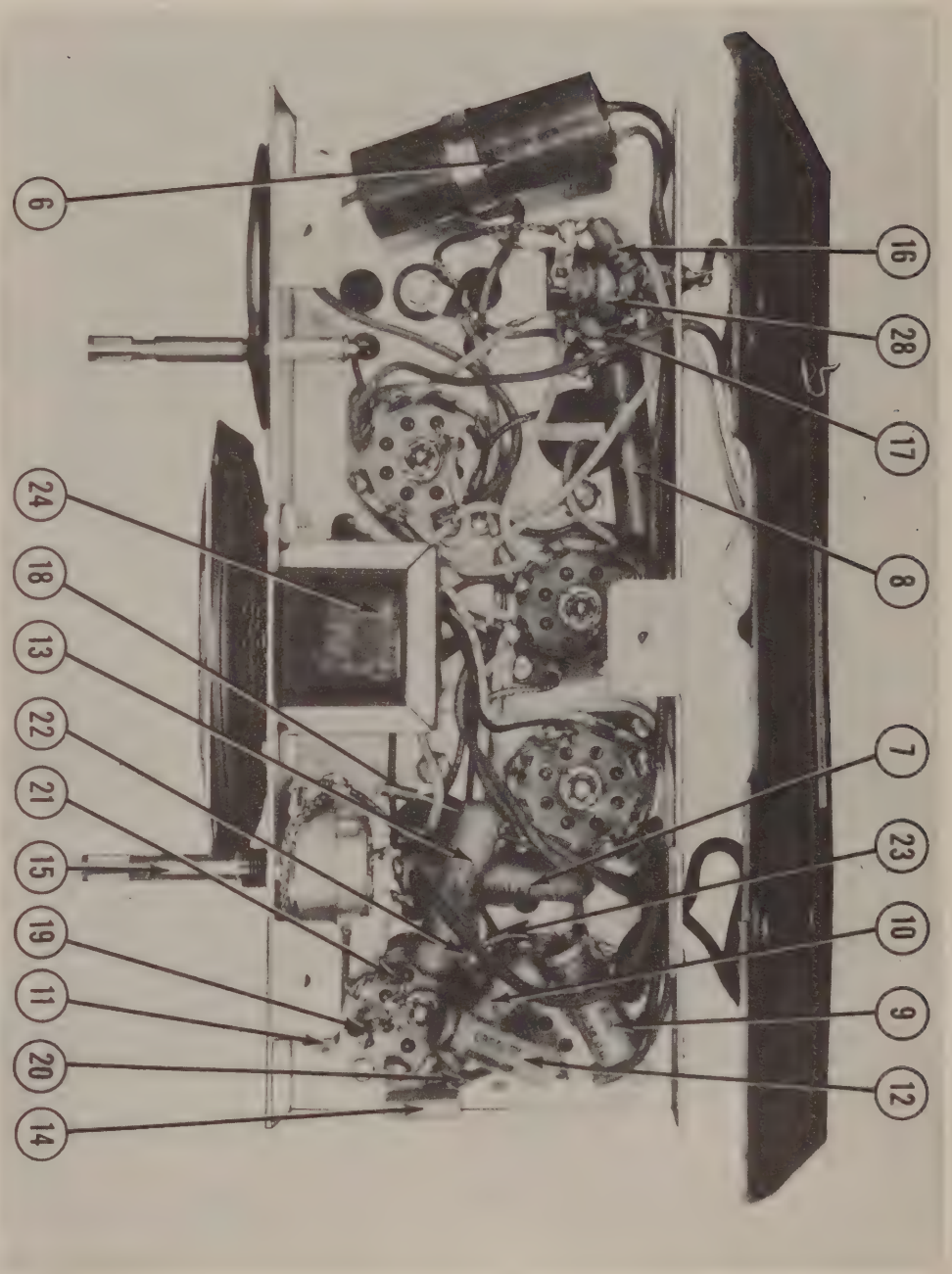
MISCELLANEOUS

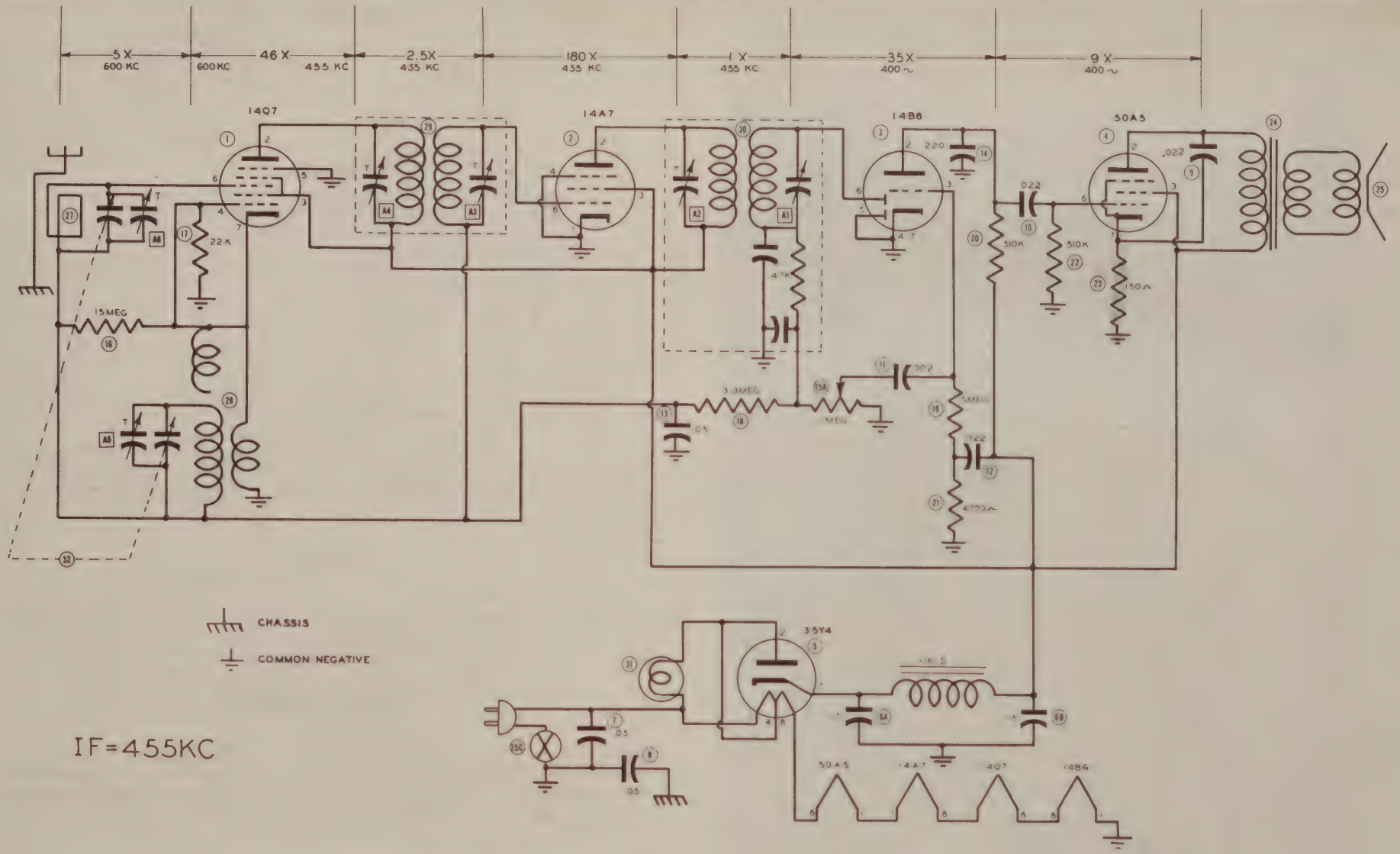
ITEM No.	PART NAME	MONITOR PART No.	NOTES
32	Tuning Cap.		2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25.5VAC	92V DC	92V DC	-1.4VDC	0V	-.25VDC	0V	3.5VAC
2	14A7	37.8VAC	92V DC	92V DC	2V	0V	-.25VDC	0V	25.5VAC
3	14B6	0Ω	57V DC	-.5V DC	0V	0V	-.35VDC	0V	13.5VAC
4	50A5	37.8VAC	87V DC	92V DC	92V DC	0V	0V	5.8VDC	88VAC
5	35Y4	117VAC	113VAC	-.25VDC	113VAC	92V DC	0V	117V DC	88VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24Ω	10M Ω	10M Ω	8.5M Ω	0Ω	3 MEG	5Ω	2Ω
2	14A7	35Ω	10M Ω	10M Ω	2Ω	0Ω	3 MEG	0Ω	24Ω
3	14B6	0Ω	580K Ω	5 MEG	0Ω	0Ω	950K Ω	0Ω	12Ω
4	50A5	35Ω	70K Ω	70K Ω	70K Ω	INF	450K Ω	150Ω	78Ω
5	35Y4	103Ω	100Ω	3 MEG	100Ω	70K Ω	INF	70K Ω	78Ω

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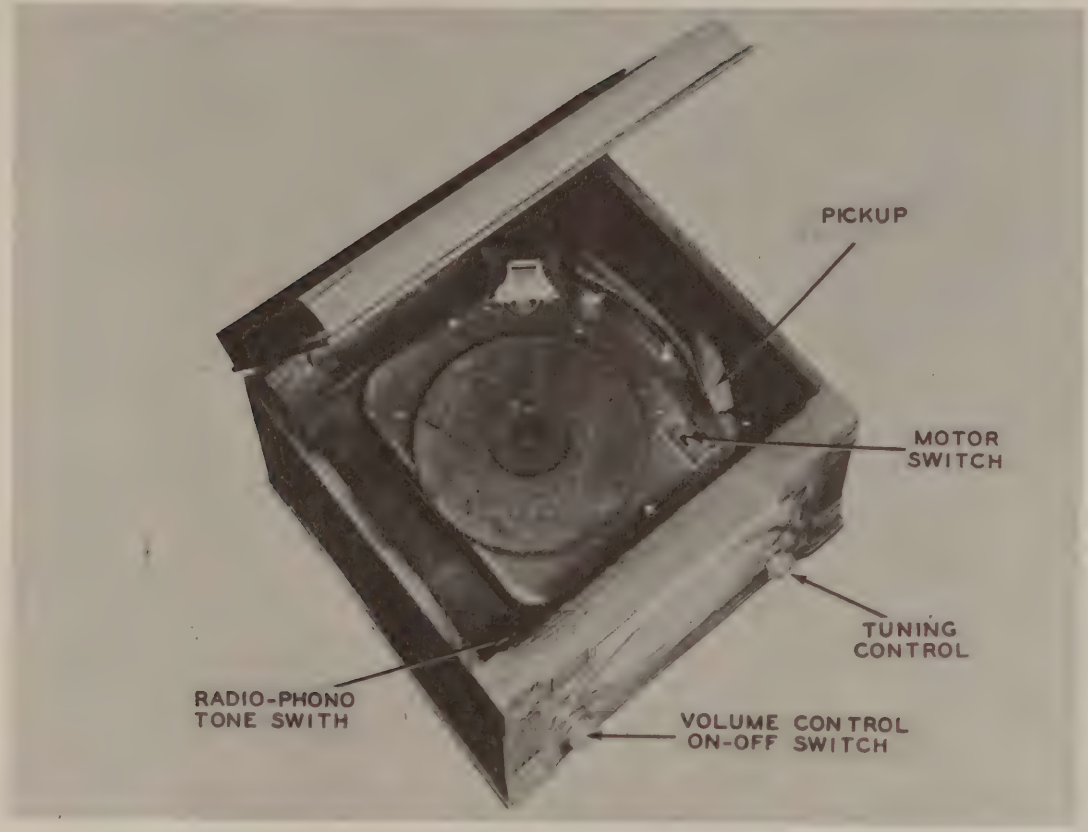
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



MOTOROLA
MODEL 65F11

MODEL 65F11

MOTOROLA MODEL 65F11

TRADE NAME	Motorola Model 65F11 (Ch. HS-31)
MANUFACTURER	Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill.
TYPE SET	AC Operated Combination Auto. Phono. - Superheterodyne Receiver, Self Contained Loop Antenna
TUBES (SIX)	7H7 Converter, 7A4 Oscillator, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7B5 Power Output, 5Y3GT Rectifier.
POWER SUPPLY	117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC RATING .460 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Adjust dial pointer with gang fully closed to mark on dial to left of "55".
Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD.	High side to pin #6 (grid) of 7H7. Low side to chassis.	455KC	Point of no interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMFD	High side to ext. ant. connection. Low side to chassis.	1600KC	1600KC	"	A5	" " " "
200 MMFD	"	1400KC	Tune in 1400 KC signal.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
1	Converter	7H7	7H7	8V	
2	Oscillator	7A4	7A4	5AC	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	7B5	7B5	6AE	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7A	30	300	23A27718	FP331	DY-2x30-350	EL-323	AF44J	UP6BJ38	▲ Filter
B	30	350			50-50				▲ "
C	20	25					PRS50-25	BR202A	"
8	.005	600	8S9813-D	TP408	S-6-005	TC-25	684-.005	DT6D5	7B5 Plate Bypass
9	.05	400	8S9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	Audio Coupling
10	.005	600	8S9813-D	TP408	S-6-005	TC-25	684-.005	DT6D5	Tone Compensation
11	.005	600	8S9813-D	TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
12	.05	400	8S9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	Osc. Plate Bypass
13	.05	400	8S9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	Screen Bypass
14	.05	400	8S9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
15	.05	400	8S9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	Cath. Coupling
16	.05	400	8S9816-D	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
17	500	500		MC245	MO.5-35	1FM-35	1468-.0005	5W5T5	Audio Plate Bypass
18	500	500		MC245	MO.5-35	1FM-35	1468-.0005	5W5T5	RF Bypass Diode
19	100	500		MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	Phono Coupling

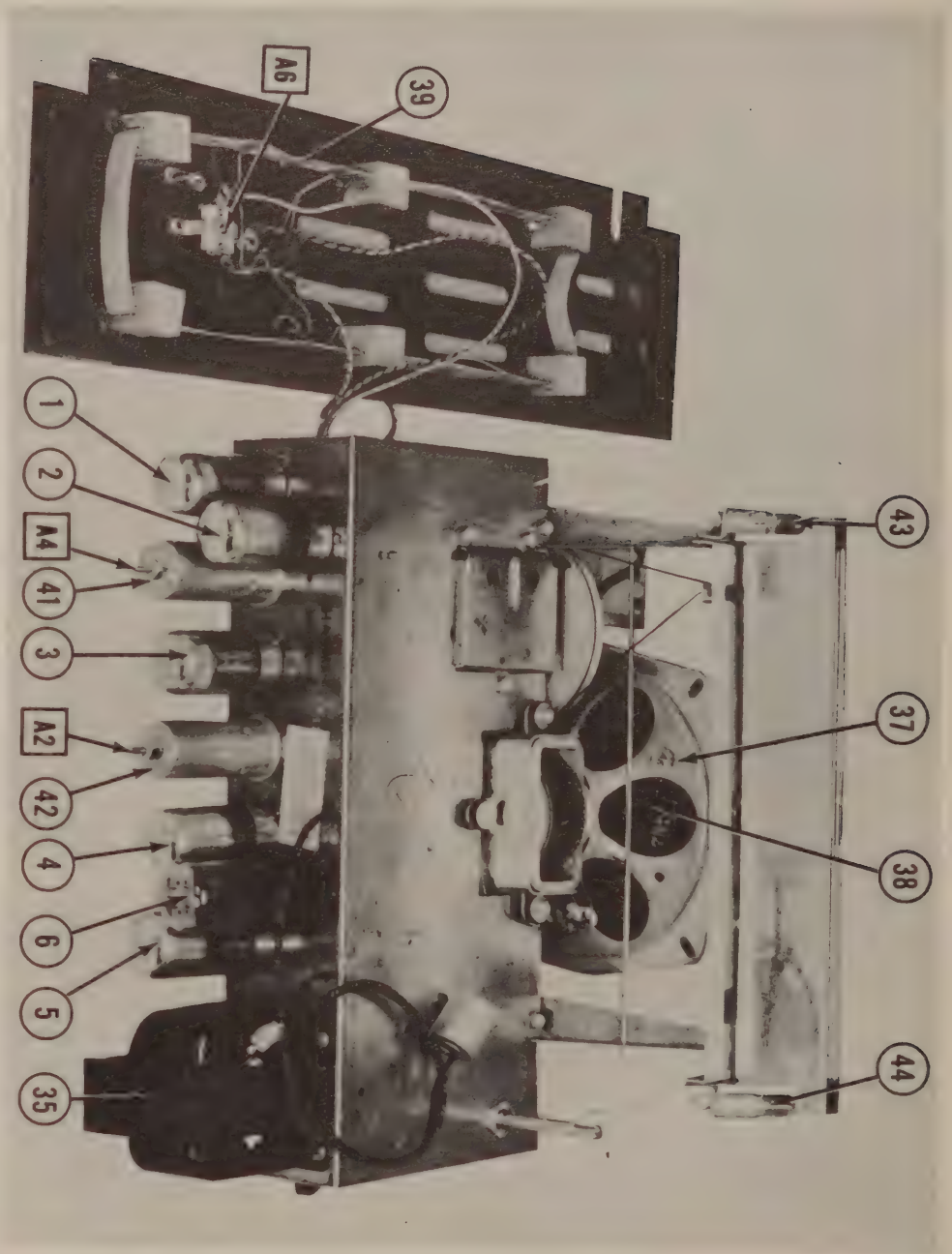
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	1 Meg.	1	18A70032-A	MK402	D13-133	AM-68-3	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
21	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
22	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Osc. Grid
23	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
24	470Ω	½		BW-½-470	Yl.-Vi.-Br. Mixer Cathode
25	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
26	22KΩ	½		BTS-22K	Red-Red-Or. Screen Dropping
27	1000Ω	½		BTS-1000	Br.-Blk.-Red Decoupling
28	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Series Phono.
29	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
30	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
31	270Ω	1		BW-1-270	Red-Vi.-Br. Fixed Bias
32	22Ω	1		BW-1-22	Red-Red-Blk. Fixed Bias
33	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
34	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	THORDARSON PART No.	UTAH PART No.
35	117VAC @ .460A	550VCT @ .051A	4.7VAC @ 1.8A	6.2VAC @ 2.1A		P-6119†	T-22R30	†Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
36	11000Ω	3.3Ω	550Ω	.45Ω		A-3879	T-22S47†		†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	MOTOROLA PART No.	JENSEN PART No.		
37	1280Ω	3.3Ω		ST-567* Mod. E6-RS		*Fabricate mounting bracket.
	CONE DIA.	VC DIA.				
38	6"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
39	Loop Ant.	.3Ω	3.5Ω	24K72605		
40	Osc. Coil		9Ω		14-1040	
41	Input IF	16Ω	14.9Ω		16-6666	
42	Output IF	15.5Ω	16.2Ω		16-6667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MOTOROLA PART No.		
43	Bayonet	6-8	.25	Blue			Type 44
44	"	6-8	.25	"			" "

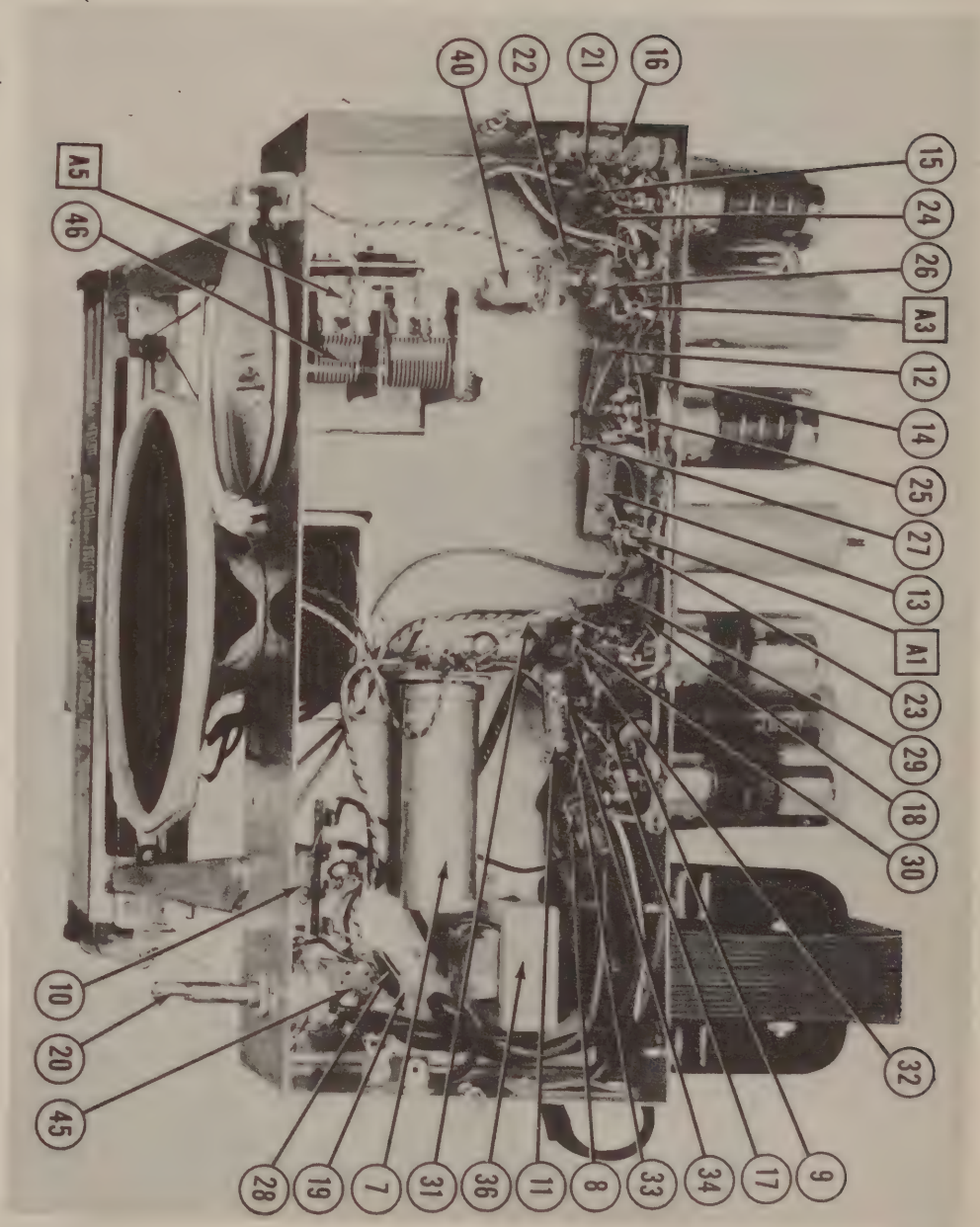
MISCELLANEOUS

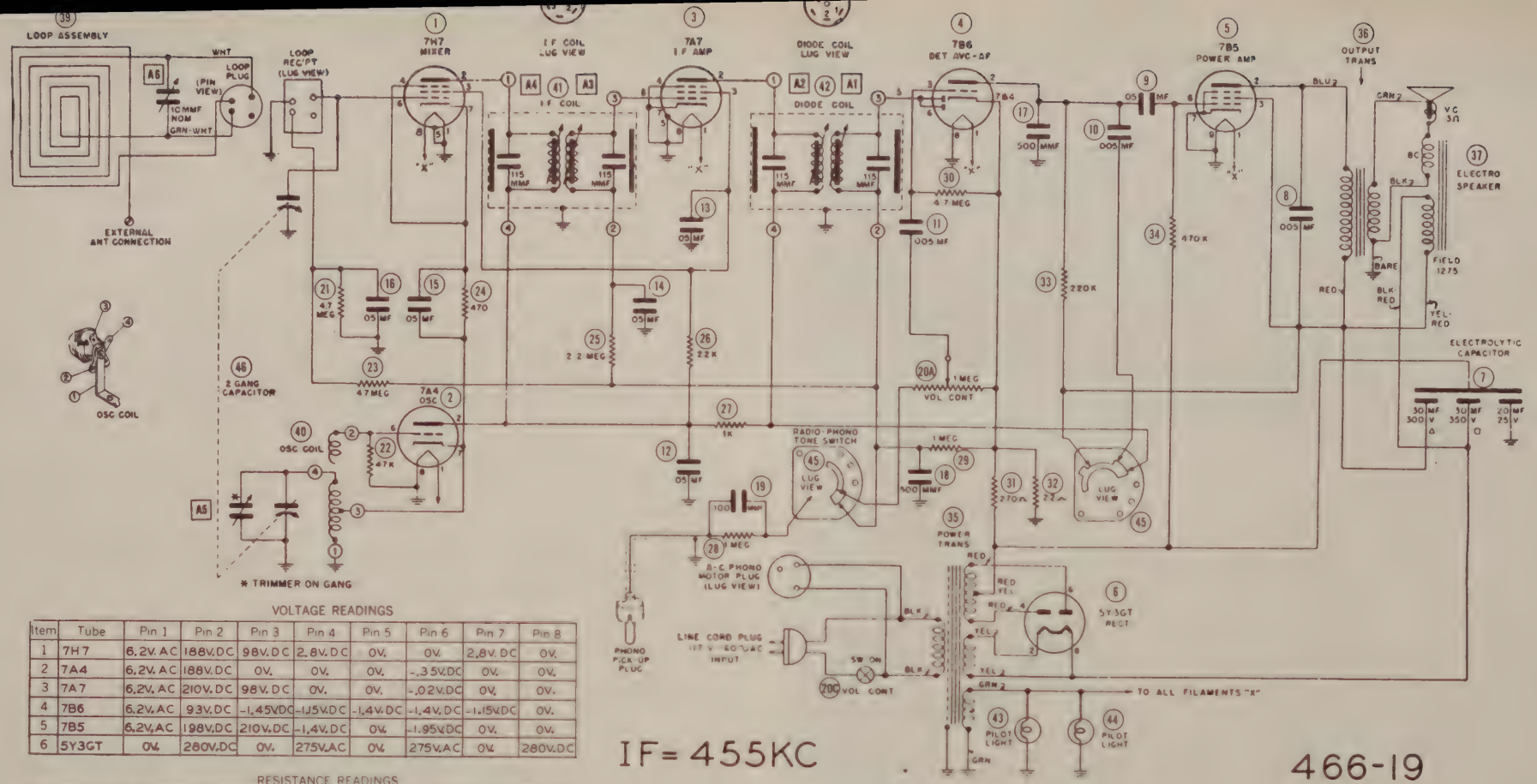
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
45	Switch		Radio-Phono-Tone
46	Tuning Cap.		2 Gang Variable Cap.

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type knobs.
2. Remove seven wood screws from chassis bottom board. Remove chassis board and chassis from cabinet.
3. Disconnect antenna loop leads, phono motor plug and phono pick-up plug from chassis.
4. Remove six hex head screws holding antenna loop to cabinet. Remove antenna loop.
5. Remove two hex head screws holding chassis to chassis board.

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7H7	6.2V. AC	188V.DC	98V.DC	2.8V.DC	0V.	0V.	2.8V. DC	0V.
2	7A4	6.2V. AC	188V.DC	0V.	0V.	0V.	-.35V.DC	0V.	0V.
3	7A7	6.2V. AC	210V. DC	98V. DC	0V.	0V.	-.02V.DC	0V.	0V.
4	7B6	6.2V. AC	93V. DC	-1.45VDC	-1.5V.DC	-1.4V. DC	-1.4V. DC	-1.15V.DC	0V.
5	7B5	6.2V. AC	198V.DC	210V. DC	-1.4V. DC	0V.	-1.95V.DC	0V.	0V.
6	5Y3GT	0V.	280V.DC	0V.	275V.AC	0V.	275V.AC	0V.	280V.DC

RESISTANCE READINGS

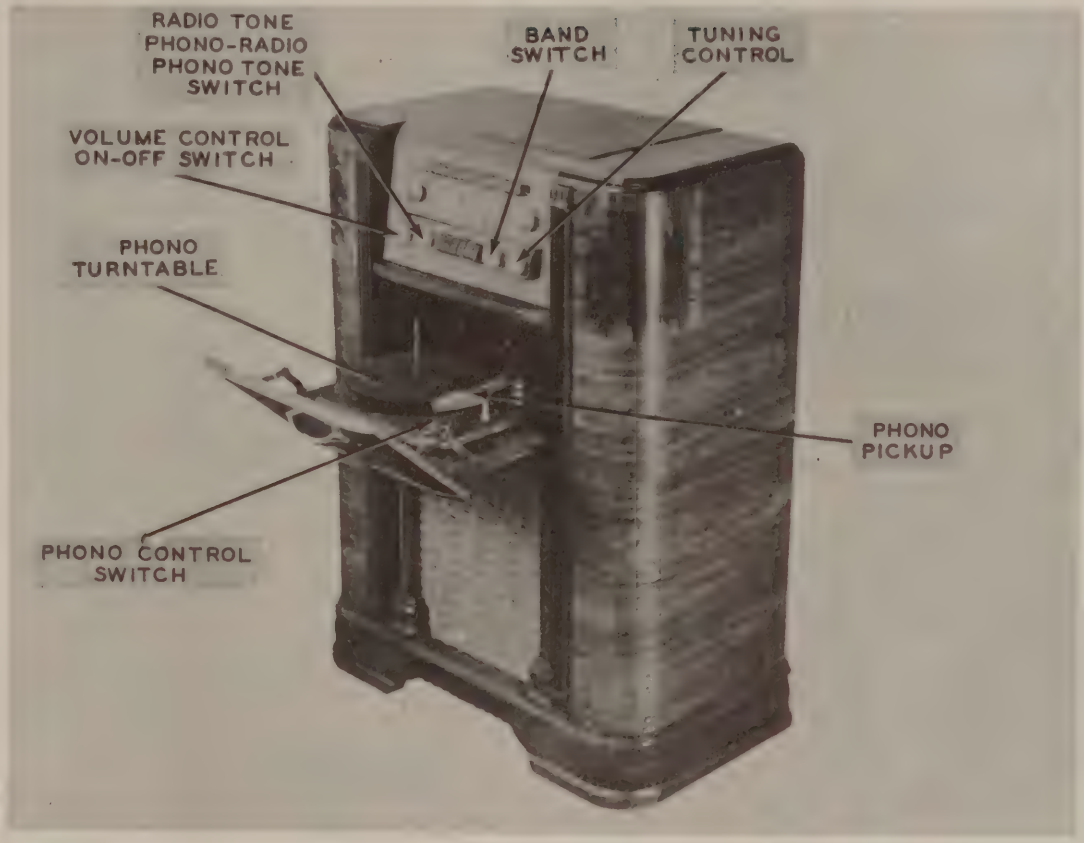
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7H7	0 Ω	266K Ω	288K Ω	480 Ω	0 Ω	2.6MEG	480 Ω	0 Ω
2	7A4	0 Ω	266 K Ω	INF	INF	INF	38K Ω	1 Ω	0 Ω
3	7A7	0 Ω	265 K Ω	288 K Ω	0 Ω	0 Ω	2.6MEG	0 Ω	0 Ω
4	7B6	0 Ω	485 K Ω	3.9MEG	21 Ω	520K Ω	520K Ω	21 Ω	0 Ω
5	7B5	0 Ω	265 K Ω	265K Ω	510 K Ω	0 Ω	390K Ω	0 Ω	0 Ω
6	5Y3GT	INF	265K Ω	INF	440 Ω	INF	430 Ω	INF	265K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

Reference stage gain measurements are not included at the request of the manufacturer.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



MOTOROLA
MODEL 85F21

MOTOROLA MODEL 85F21

TRADE NAME	Motorola Model 85F21 (Ch. HS-22)
MANUFACTURER	Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill.
TYPE SET	AC Operated Combination Automatic Phono.-2 Band Superheterodyne Receiver, Self Contained Loop Antenna & Automatic Pushbutton Tuning.
TUBES (EIGHT)	Types, 6SG7 Converter, 6J5 Oscillator, 6SG7 IF Amp., 6SQ7 Det.-AVC-AF, 6SQ7 Phase Inverter, 2-6K6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	117 Volts AC RATING .790 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1620KC SHORT WAVE 5.6 - 12.2 MC

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #4 of 6SG7 mixer. Low side to chassis.	455KC	BC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
	Loop	1600KC	"	1600KC	"	A5	Adjust for maximum output Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop
	"	1400KC	"	Tune in 1400 KC signal.	"	A6	"
400Ω res.	High side to ext. ant. Low side to chassis.	12MC	SW	12MC	"	A7,A8.	Adjust for maximum output

MODEL 85F21

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SG7	6SG7	8BK	
2	Oscillator	6J5	6J5	6Q	
3	IF Amp.	6SG7	6SG7	8BK	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Phase Inverter	6SQ7	6SQ7	8Q	
6	Power Output	6K6GT	6K6GT	7S	
7	Power Output	6K6GT	6K6GT	7S	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	30	350	23A27718	FP331	DY-2x30-350/50-50	EL-323	AF32K4A	UP6BJ38	■ Filter
B	30	300							▲ "
C	20	25						BR202A	"
10	.005	600	8S-9813	TP408	S-6-005	TC-25	684-.005	DT6D5	SG Plate Bypass
11	.05	400	8S-9816	TP426	S-4-05	TC-15	484-.05	DT4S5	Audio Coupling
12	.05	400	8S-9816	TP426	S-4-05	TC-15	484-.05	DT4S5	" "
13	.005	600	8S-9813	TP408	S-6-005	TC-25	684-.005	DT6D5	Tone Compensation
14	.005	600	8S-9813	TP408	S-6-005	TC-25	684-.005	DT6D5	" "
15	.005	600	8S-9813	TP408	S-6-005	TC-25	684-.005	DT6D5	Audio Coupling
16	.05	400	8S-9816	TP426	S-4-05	TC-15	484-.05	DT4S5	Screen Bypass
17	.05	400	8S-9816	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
18	.05	400	8S-9816	TP426	S-4-05	TC-15	484-.05	DT4S5	" "
19	.05	400	8S-9816	TP426	S-4-05	TC-15	484-.05	DT4S5	Osc. Plate Bypass
20	.05	400	8S-9816	TP426	S-4-05	TC-15	484-.05	DT4S5	Cath. Coupling
21	500	500		MC245	MO.5-35	1FM-35	1468-.0005	5W5T5	Audio Plate Bypass
22	500	500		MC245	MO.5-35	1FM-35	1468-.0005	5W5T5	RF Bypass Vol. Cont.
23	200	500		MC237	MO.5-32	1FM-32	1468-.0002	5W5T2	Mixer Coupling
24	50	500		MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cond.
25	50	500		MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	RF Coupling
26	1000	500		MC255	MO.3-21	1FM-21	1468-.001	1W5D1	Fixed Tap
27	535	500							Fixed Tuning

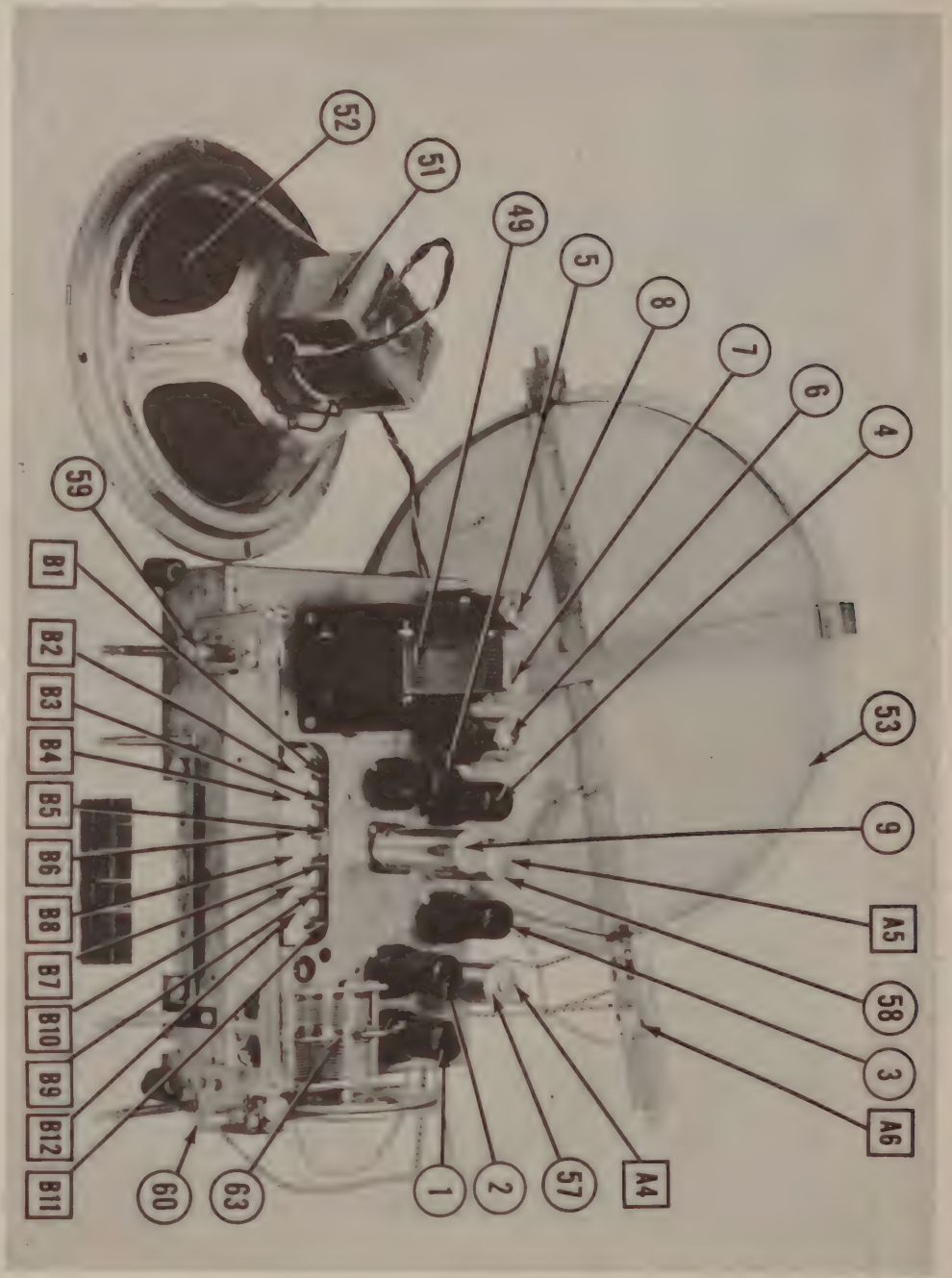
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
28A	1 Meg.	1	15A70088-B	TM240	D13-137X	AT-98	Volume Control.
B	Shaft		Not Req.	SS25	E	KM-3	Attach to 28A per Instructions
C	Switch		" "	M26	41	SW-A	" " " " "
29	1 Meg.	1	18K70086-C				Tone Control & Phono Switch

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
30	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Ant. Loading
31	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Osc. Grid
32	470Ω	½		BTS-470	Yl.-Vi.-Br. Mixer Cathode
33	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
34	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
35	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
36	22KΩ	½		BTS-22K	Red-Red-Or. IF Screen Dropping
37	1000Ω	½		BTS-1000	Br.-Blk.-Red Osc. Plate Load
38	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
39	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
40	10Ω	½		BW-½-10	Br.-Blk.-Blk. Voltage Divider Bias
41	180Ω	1		BW-1-180	Br.-Gray-Br. " " "
42	33KΩ	½		BTS-33K	Or.-Or.-Or. Tone Compensation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS CONTINUED

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
43	. . . KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
44	220KΩ	½		BTS-220K	Red-Red-Yl. Inverter Plate Load
45	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Power Amp. Grid
46	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Power Amp. Grid
47	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Inverter Grid
48	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Phono Load

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	THORDARSON PART No.	
49	117 V. ⑤ .79A.	640VCT ④ .095A	5.0V ⑤ 1.85A	6.3A ③ 2.07A	25B26035	P-6013†	T-13R13†	†Use universal mounting brackets supplied with this unit.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
50	8375Ω	3Ω	580Ω CT	.42Ω	25B27661	A-2201	T-13541‡		‡Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
51	800Ω	3Ω	50B72379	ST-441 * Mod. G10-R8		*Change output transformer to match 6Ω voice coil. Parallel the field coil with 2000Ω 20W resistor.
	CONE DIA.	VC DIA.				
52	9-3/8"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
53	Loop Ant.	0Ω	1.4Ω	24K72495		
54	SW Ant.Coil	3Ω	0Ω		14-1044	
55	BC Osc. "		7Ω		14-1040	
56	SW " "		0Ω		14-1046	
57	Input IF	14Ω	14Ω		16-6658	Drill new mtg. holes
58	Output IF	15Ω	15Ω		16-6660	" " " "

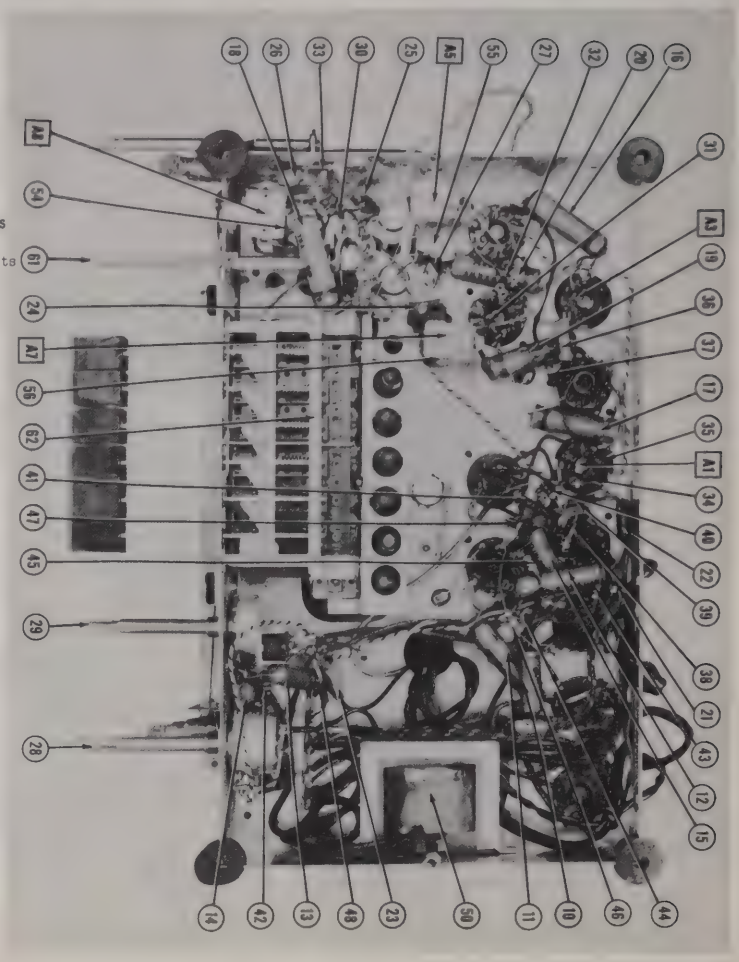
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MOTOROLA PART No.		
59	Bayonet	6-8	0.2	white			Type 51
60	"	6-8	0.2	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
61	Band Switch		2 position
62	Tuning Assby.		Auto. Tuning
63	Tuning Cap.		2 Gang Variable Cap.

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

1 - Remove band switch, volume, tone, and tuning control push-on knobs from front panel.

2 - Remove two Phillips head screws, holding dial glass panel to cabinet and remove panel.

3 - Tilt dial glass forward and remove by raising upward.

4 - Remove dial pointer from slot by pulling forward.

5 - Remove screw holding speaker plug in socket and remove plug.

6 - Remove antenna plug from chassis socket.

7 - Remove red and white antenna loop lead from cabinet clip.

8 - Remove white lead from antenna loop connected to chassis.

9 - Remove phono plug and pickup jack.

10 - Remove clip holding phono cord to phono mounting board.

11 - Remove four bolts holding chassis to mounting board and remove chassis.

12 - Remove four nuts and washers holding speaker to baffle board, and remove speaker.

13 - Force antenna loop mounting brackets apart and remove loop.

PUSHBUTTON ADJUSTMENTS

The six pushbuttons from left to right (facing front of receiver) cover the following frequency ranges: 540 to 930 KC, 600 to 1050 KC, 650 to 1200 KC, 650 to 1200 KC, 750 to 1350 KC, 900 to 1600 KC. To set up pushbuttons proceed as follows:

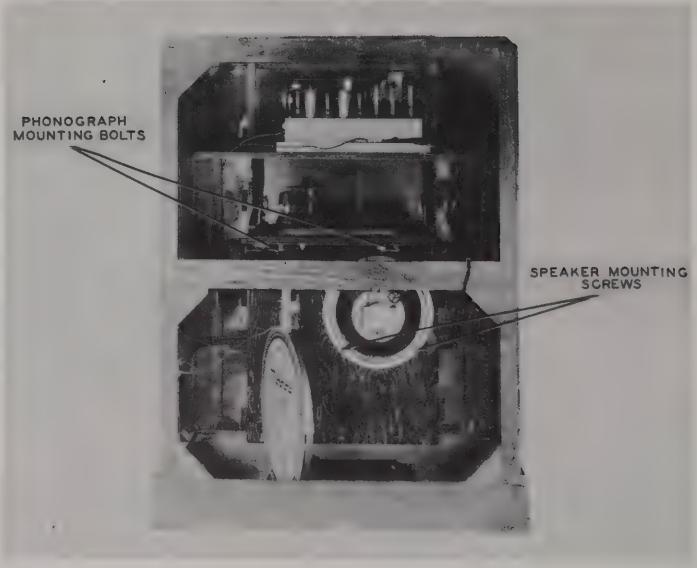
1 - Turn band switch to BC (broadcast) position. Turn radio on and allow 10 minutes for warm-up period.

2 - Select a station within the frequency range of the pushbutton to the extreme left and associated adjustments B1, B2 (540 to 930 KC). Tune in station by manual tuning and listen to program so you may identify it.

3 - Turn band switch to pushbutton position. Push in button to extreme left. Adjust B1 to tune in station selected.

4 - Adjust B2 for maximum volume of station.

5 - Proceed in the same manner to set up remaining pushbuttons. Always select a station within range of pushbutton and associated adjustments. B3, B5, B7, B9 and B11 are adjusted to tune in station. B4, B6, B8, B10, and B12 are adjusted for maximum volume.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	265V.DC	-25V.DC	2.6V. DC	115V.DC	6.3V.AC	207VDC
2	6J5	0V.	0V.	205V.DC	0V.	-.05V.DC	0V.	6.3V.AC	0V.
3	6SG7	0V.	0V.	0V.	-.3 V	0V.	115V.DC	6.3V.AC	225VDC
4	6SQ7	0V.	-1.3V.DC	1V. DC	-1.35VDC	-1.35VDC	107V.DC	6.3VAC	0V.
5	6SQ7	0V.	-17V. DC	-16.5VDC	-16.5V.DC	*	*	6.3VAC	0V.
6	6K6GT	0V.	0V.	217VDC	223VDC	-12V.DC	-1.3V.DC	6.3VAC	0V.
7	6K6GT	0V.	0V.	217VDC	223VDC	-12V.DC	0V.	6.3VAC	0V.
8	5Y3GT	0V.	300VDC	0V.	320VAC	0V.	320VAC	0V	300VDC

*NO CONNECTION - FREE DIODES AT CATHODE POTENTIAL

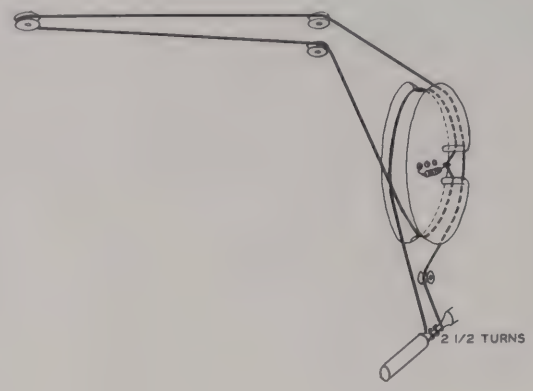
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SGT	0Ω	0Ω	470Ω	2.6 MEG	470Ω	220KΩ	0Ω	200KΩ
2	6J5	0Ω	0Ω	200KΩ	INF	44KΩ	INF	0Ω	1Ω
3	6SG7	0Ω	0Ω	0Ω	2.4MEG	0Ω	220KΩ	0Ω	200KΩ
4	6SQ7	0Ω	4.2MEG	10Ω	440KΩ	440KΩ	420KΩ	0Ω	0Ω
5	6SQ7	0Ω	85KΩ	175Ω	INF *	INF *	420KΩ	0Ω	0Ω
6	6K6GT	0Ω	0Ω	200KΩ	200KΩ	520KΩ	29Ω	0Ω	0Ω
7	6K6GT	0Ω	0Ω	200KΩ	200KΩ	540KΩ	INF	0Ω	0Ω
8	5Y3GT	INF	200KΩ	INF	270Ω	INF	275Ω	INF	200KΩ

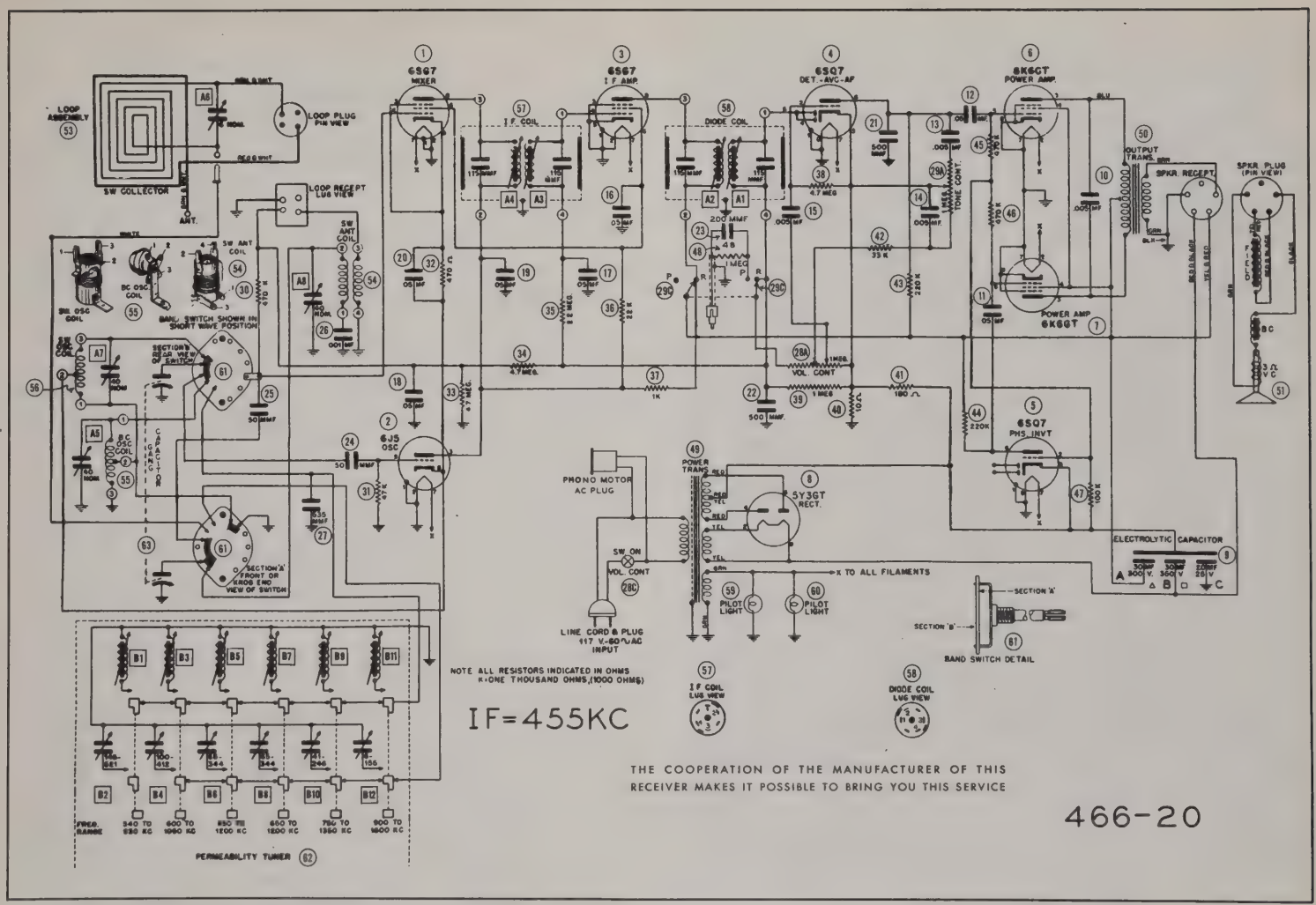
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

NOTE: VOLTAGE & RESISTANCE READINGS TAKEN IN "BROADCAST" POSITION

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE



Reference stage gain measurements are not included at the request of the manufacturer.

PHILCO
MODELS 46-420, 46-420-I

PHILCO
MODELS 46-420, 46-420-I

PHILCO MODELS 46-420

TRADE NAME	Philco Models 46-420, 46-420-I
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 7C7 RF Amp., 7A8 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .230 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

After IF alignment is completed, remount chassis in cabinet, reconnect loop leads and then adjust A5 & A6. To set dial pointer close tuning condenser to fully meshed position and set the dial pointer at the circular dot at the extreme low frequency end of the dial. Use isolating transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD.	High side to stator plate terminal of tuning condenser. Low side to B-.	455KC	Low freq.end of dial.(Variable fully closed)	Across voice coil (Lugs on terminal strip at rear of chassis)	A1,A2, A3,A4.	Turn A4 down tight. Adjust trimmer for maximum output in given order including A4. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce excessive hum modulation.
.05 MFD.	"	1600KC	1600KC	"	A5	Adjust for maximum output.
100 MMF.	High side to external ant. lead. Low side to chassis.	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7C7	7C7	8V	
2	Converter	7A8	7A8	8U	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	7C6	7C6	8W	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	150	30-2547	2N509	DHN-2x20-150	TA-220	PRSA150-20-20	EZ2215	Filter - Red
B	20	150							" - Orange
8	.04	400	30-4119	TP425	S-6-04	TC-14	484-04	DT4S4	Line Filter
9	.02	400	30-4599	TP423	S-4-02	TC-12	484-02	DT4S2	50L6 Plate Bypass
10	.01	400	61-0120	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	400	61-0120	TP421	S-4-01	TC-11	484-01	DT4S1	" "
12	.05	200	30-4518	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.05	200	30-4518	TP426	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
14	.1	200	30-4527	TP428	S-4-1	TC-1	484-.1	DT4P1	Cath. Bypass
15	.2	400	76-1198	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating Trap*
16	.0015	600	30-4628	TP404	S-6-001	TC-21	684-001	DT6D1	Ant. Coupling
17	250	500	6010245307	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	50L6 Grid Bypass
18	3		30-1221						RF Plate Bypass†
19	10	500	6000105407	MC215	M0.5-41	MS-41	1468-00001	5W5Q1	Fixed Trimmer †
20	100	500	6010105407	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

*Wind same number of turns of wire on replacement as on original.
†Not used on all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21	500KΩ	1	33-5491				Volume Control & Switch

RESISTORS

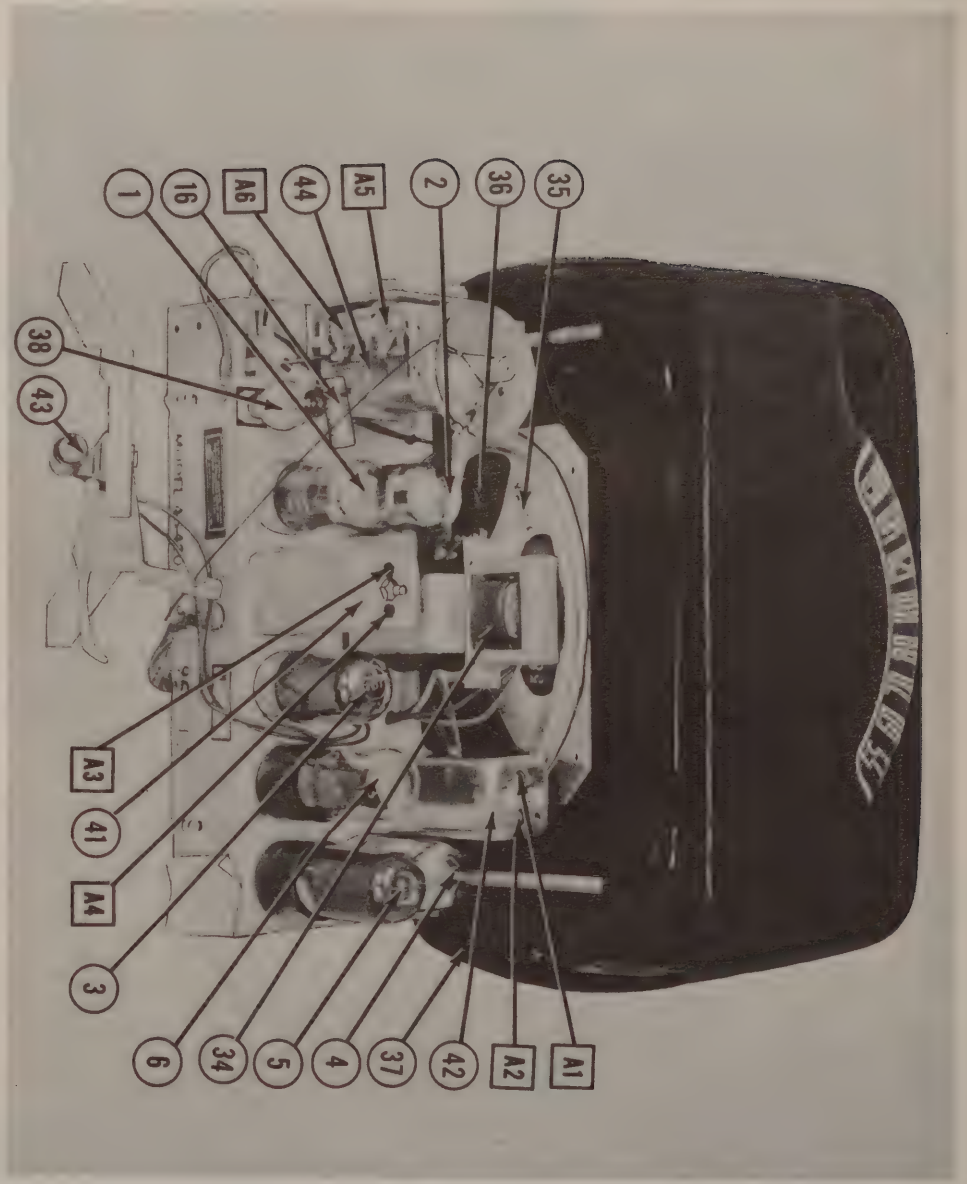
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
22	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
23	180Ω	1	66-1184360	BW-1-180	Br.-Gray-Br. RF Cathode
24	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. RF Coil Shunt-See Note 1
25A	120KΩ	½		BTS-120K	Br.-Red-Yl. Osc. Grid Later Production
B	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. Osc. Grid Early Production
26	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. Screen Dropping
27	3.3 Meg.	½	66-5333340	BTS-3.3 Meg.	Or.-Or.-Grn. 1st AF Grid
28	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Filter
29	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
30	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
31	130Ω	1	66-1123340	BW-1-120	Br.-Or.-Br. Output Cathode
32	45Ω	10	33-3408-1	AB-50	Line Dropping
33	120KΩ	½		BTS-120K	Br.-Red-Yl. Line Isolating-See Note 1

Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
34	2390Ω	3.92Ω	170Ω	.42Ω	Part of 36-1591	A-3876	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
35	500Ω	3.6Ω	36-1591			
	CONE DIA.	VC DIA.				
36	4"x6"	½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

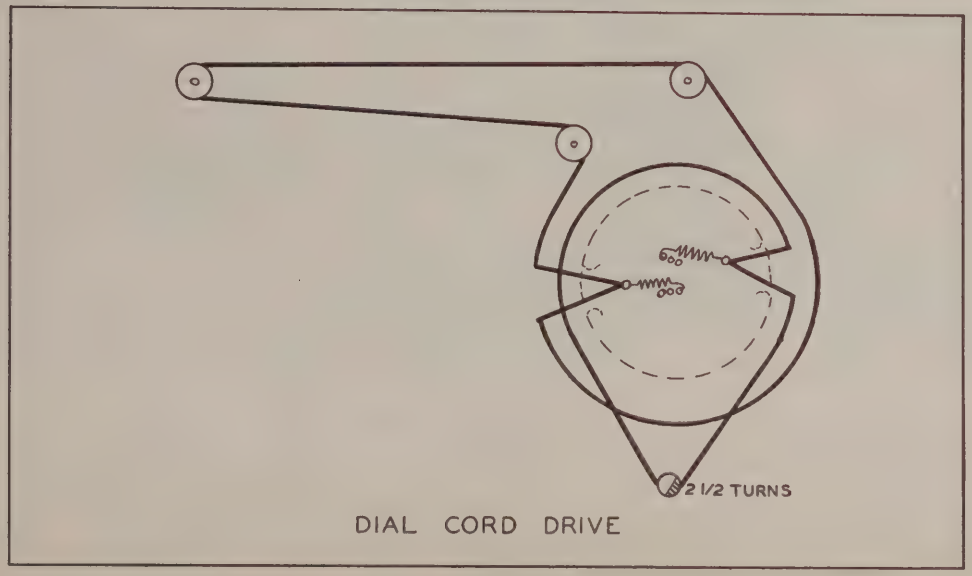
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
37	Loop Ant.		3Ω	32-4054		
38	Ant. Coil	3Ω	.8Ω	32-3394		
39	RF Coil	30Ω	29.5Ω	32-3595		
40	Osc. Coil	2.8Ω	6.8Ω	32-3613	14-1040	
41	Input IF	32Ω	22Ω	32-4026	16-6658	
42	Output IF	20Ω		32-3948	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
43	Bayonet	Brown	0.15	Brown	34-2068		Type 47

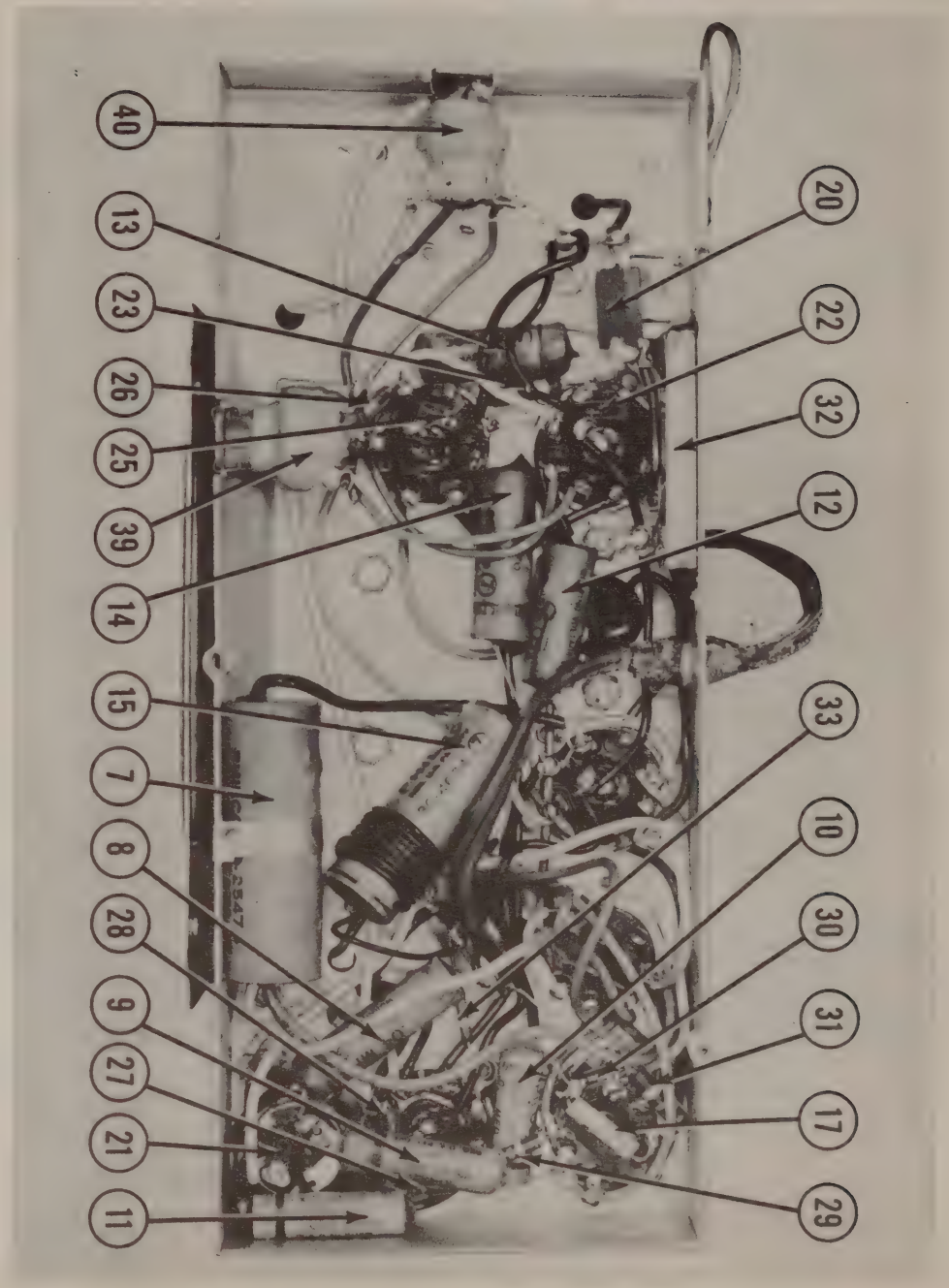
MISCELLANEOUS

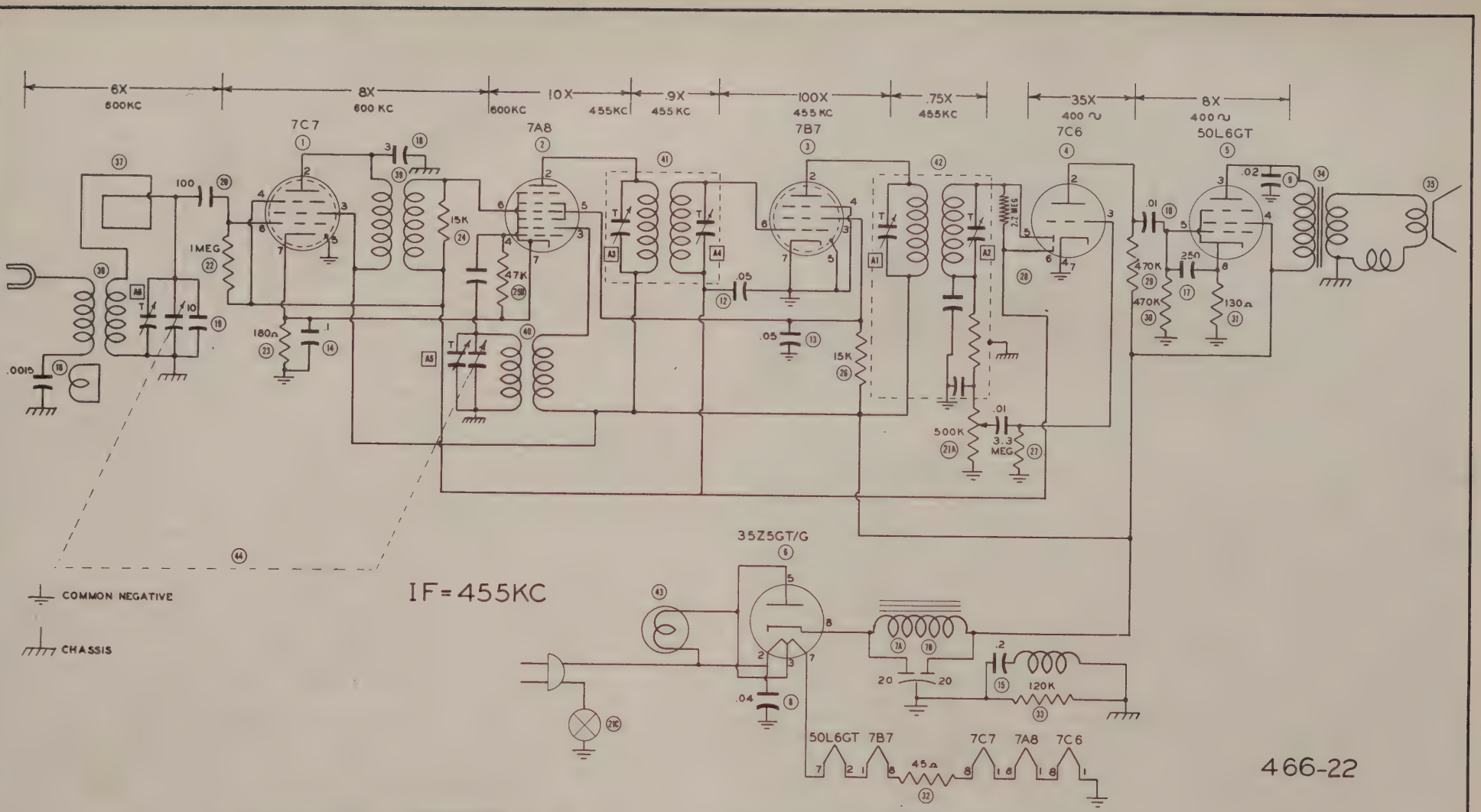
ITEM No.	PART NAME	PHILCO PART No.	NOTES
44	Tuning Cap.	31-2636	2 Gang Variable Cap.
	Cabinet	10629-A	(Including Scale)
	Knob Assby.	54-4218	
	Pointer	54-4253	Dial
	Scale	27-5843	"



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





466-22

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	14 V.AC	87 V.DC	87 V.DC	-.6 V.DC	0 V.	0 V.	1.3 V.DC	21 V.AC
2	7A8	6.5 V.AC	87 V.DC	87 V.DC	-2 V DC	50 V.DC	-.6 V.DC	1.3 V.DC	14 V.AC
3	7B7	35 V.AC	87 V.DC	50 V.DC	0 V.	0 V.	-.6 V.DC	0 V.	28 V.AC
4	7C6	0 V.	55 V.DC	-.55 V.DC	0 V.	-.4 V. DC	-.6 V.DC	0 V.	6.5 V.AC
5	50L6GT	0 V.	35 V.AC	80 V.DC	87 V.DC	0 V.	0 V.	87 V.AC	57 V.DC
6	35Z5GT	87 V.DC	117 V.AC	113 V.AC	87 V.DC	113 V.AC	87 V.DC	87 V.AC	115 V.DC

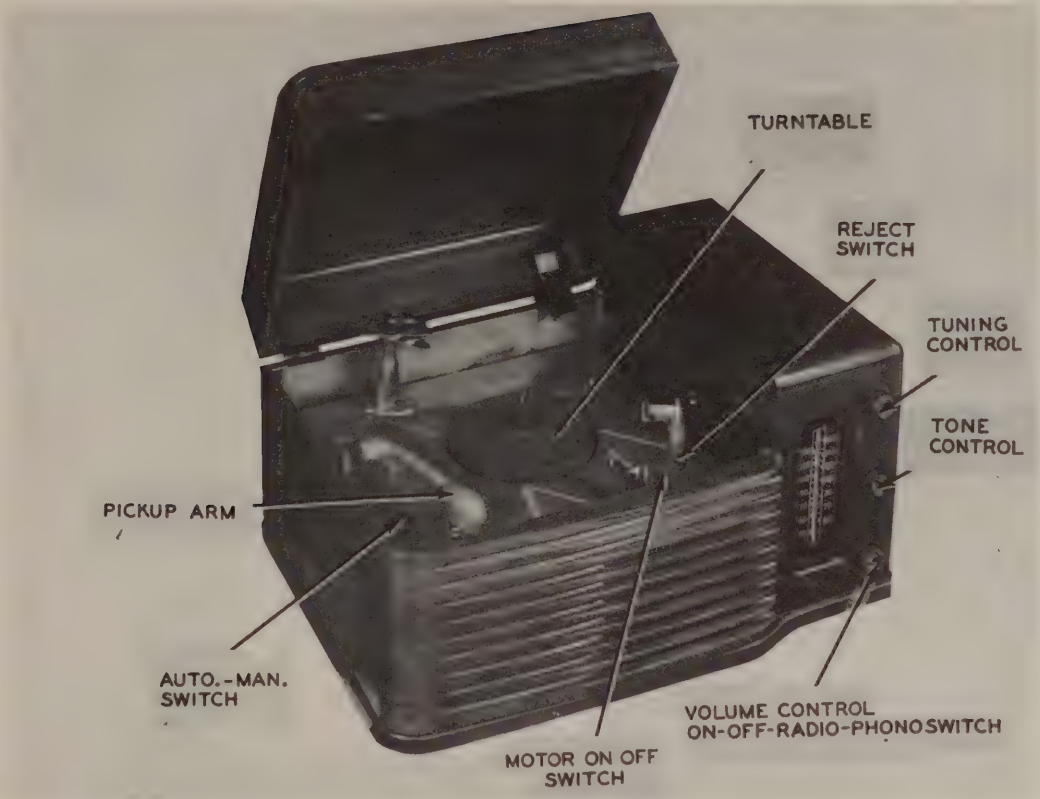
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	13.5 Ω	100 KΩ	100 KΩ	3 MEG	0 Ω	4 MEG	175 Ω	20.5 Ω
2	7A8	6 Ω	100 KΩ	100 KΩ	115 KΩ	115 KΩ	3 MEG	175 Ω	13.5 Ω
3	7B7	71 Ω	100 KΩ	115 KΩ	0 Ω	0 Ω	3 MEG	0 Ω	64 Ω
4	7C6	0 Ω	570 KΩ	3.2 MEG	0 Ω	540 KΩ	3 MEG	0 Ω	6 Ω
5	50L6GT	1 N F	71 Ω	100 KΩ	100 KΩ	480 KΩ	0 Ω	119 Ω	140 Ω
6	35Z5GT	100 KΩ	145 Ω	142 Ω	100 KΩ	142 Ω	100 KΩ	119 Ω	100 KΩ

Resistance readings in the B+ circuits may vary widely according to the condition of the filter capacitors.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



PHILCO
MODEL 46-1203

PHILCO
MODEL 46-1203

PHILCO MODEL 46-1203

TRADE NAME	Philco Model 46-1203
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.
TYPE SET	AC Operated Combination Auto. Phono. & Superheterodyne Receiver, Self Contained Loop Antenna.
TUBES (SIX)	Types, 7C7 RF Amp., 7A8 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 35L6GT Power Output, 50Y6GT Rectifier.
POWER SUPPLY	105-120 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .345 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Receiver should be aligned with the chassis installed in the cabinet. Pointer should be at the index at the extreme low end of the scale with variable condenser fully closed. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD.	High side to stator of ant. section of variable. Low side to B-.	455KC	Low freq.end of dial.(Variable fully closed).	Speaker terminal at rear of chassis.	A1,A2, A3,A4.	Turn A4 down tight, then adjust in order given, including A4, for maximum output.
100 MMF.	"	1600KC	1600KC	"	A5	Adjust for maximum output.
100 MMF.	High side to a wire approx. 6" long placed near loop. Low side to B-.	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7C7	7C7	8V	
2	Converter	7A8	7A8	8U	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	7C6	7C6	8W	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	50Y6GT	50Y6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	15	150	30-2559	TC44	M-16-150	UT-161	PRSV150-16	BR1615	Filter
8	15	150	30-2559	TC44	M-16-150	UT-161	PRSV150-16	BR1615	"
9A	40	150	30-2510	2N514	M-40+20-150	TA-240	PRSA1504040	BRL4215	" - Orange
B	10	150							" - Red
10	.04	400	30-4119	TP425	S-6-04	TC-14	484-04	DT4S4	Line Filter
11	.05	200	30-4518	TP426	S-4-05	TC-15	484-05	DT4S5	Motor Sw. Isolation
12	.03	400	30-4517	TP424	S-6-03	TC-13	484-03	DT4S3	Tone Compensation
13	.01	400	61-0120	TP421	S-4-01	TC-11	484-01	DT4S1	35L6 Plate Bypass
14A	.01	400	61-0120	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
B	.003	600		TP406	S-6-003	TC-23	684-003	DT6D3	" " *
15	.01	400	61-0120	TP421	S-4-01	TC-11	484-01	DT4S1	" "
16	.2	400	30-4594	TP429	S-4-2	TC-2	484-.2	DT4P2	Phono. Shield Bypass
17	.05	200	30-4518	TP426	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
18	.05	200	30-4518	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
19	.1	400	30-4527	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Cath. Bypass
20	.2	400	76-1198	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolation Trap †
21	.0015	600	30-4621	TP404	S-6-001	TC-21	684-001	DT6D1	Ant. Coupling
22	240	500	6010245307	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	35L6 Grid Bypass
23	100	500	6010105407	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Bypass Vol. Cont.
24	10	500	6000105407	MC215	M0.5-41	MS-41	1468-00001	5W5Q1	Fixed Trimmer
25	100	500	6010105407	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

*Used on some models.
†Wind same number of turns of wire on replacement as on original.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26	1 Meg.	1	33-5503				Volume Control & Switch-See Note

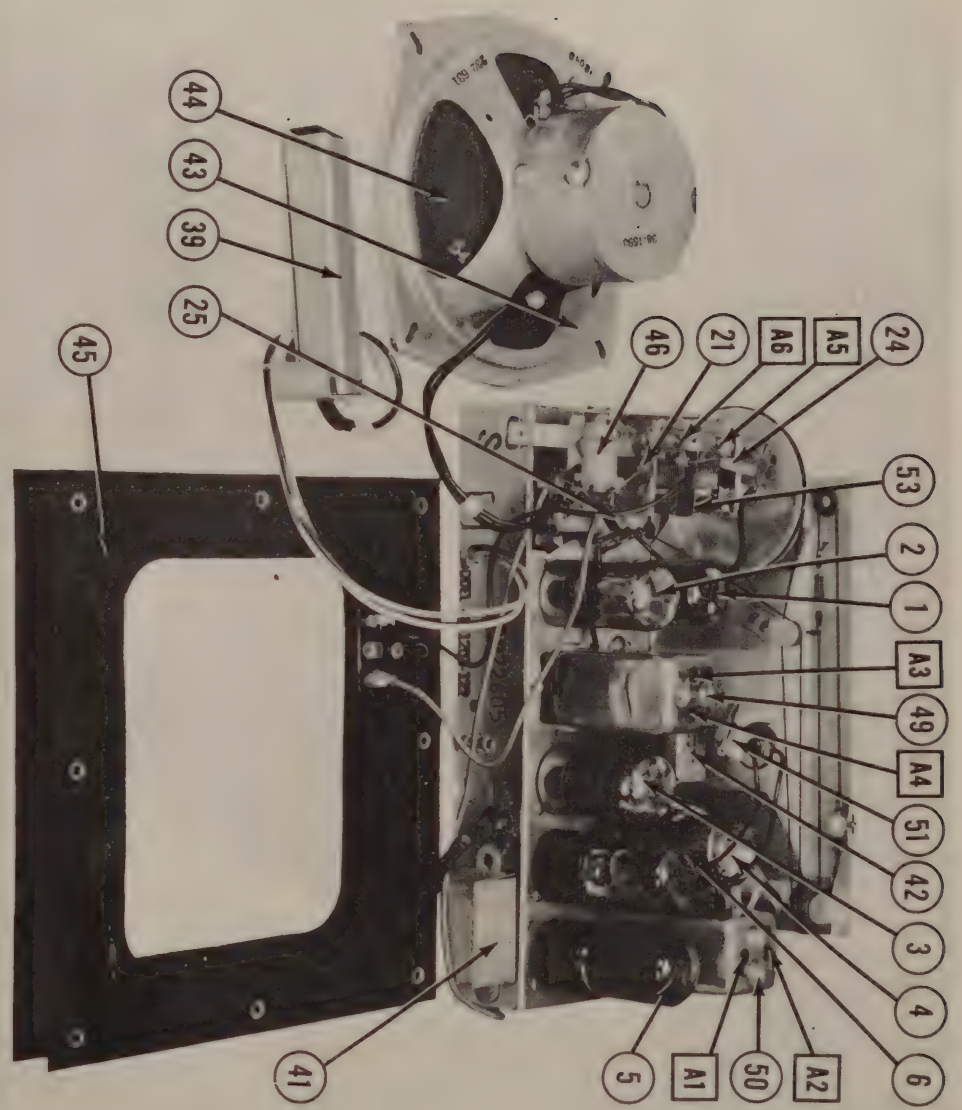
Note-Item 26 acts as two 500KΩ controls tapered opposite each other from center tap.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
27	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
28	180Ω	1	66-1184360	BW-1-180	Br.-Gray-Br. RF Cathode
29	6800Ω	½		BTS-6800	Blue-Gray-Red RF Coil Shunt
30	15KΩ	½		BTS-15K	Br.-Grn.-Or. RF Coil Shunt - See Note 1
31	120KΩ	½		BTS-120K	Br.-Red-Yl. Osc. Grid - See Note 2
32	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. Screen Dropping
33	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
34	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. 1st AF Plate Load
35	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. IF Filter
36	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
37	180Ω	1	66-1184360	BW-1-180	Br.-Gray-Br. Output Cathode
38	8200Ω	1	66-3104340	BTA-8200	Gray-Red-Red Filter & Voltage Dropping
39A	115-55Ω	10	33-3436	ABA-150‡	Line Dropping & Surge Limiter-See Note 3
39B	80-40Ω	10	33-3408	ABA-150‡	Line Dropping & Surge Limiter-See Note 4
40	120KΩ	½		BTS-120K	Br.-Red-Yl. Line Isolating-See Note 1
41	500Ω	10		AB-500	Filter-See Note 5

Note 1-Not used in all models. Note 2-Some models use a 47KΩ resistor in this application.
Note 3-Used in later production. Note 4-Used in early production.
Note 5-Some models use a choke in this application. ‡Adjust tap to 100Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
42	4000Ω	3.55Ω	450Ω	.5Ω	32-8242	A-3823	T-22587		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-111		
43	PM	3.55Ω	36-1593	Mod. P6-U		
	CONE DIA.	VC DIA.				
44	6-1/8"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
45	Loop Ant.		.2Ω	76-1640		
46	Ant. Coil	32Ω	.8Ω	32-3394		
47	RF Coil	30Ω	29.5Ω	32-3595		
48	Osc. Coil	2.8Ω	6.8Ω	32-3613	14-1040	
49	Input IF	22Ω	22.5Ω	32-3962	16-6658	
50	Output IF	21Ω		32-4005	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
51	Screw	110	.05		34-2477		Type C-7

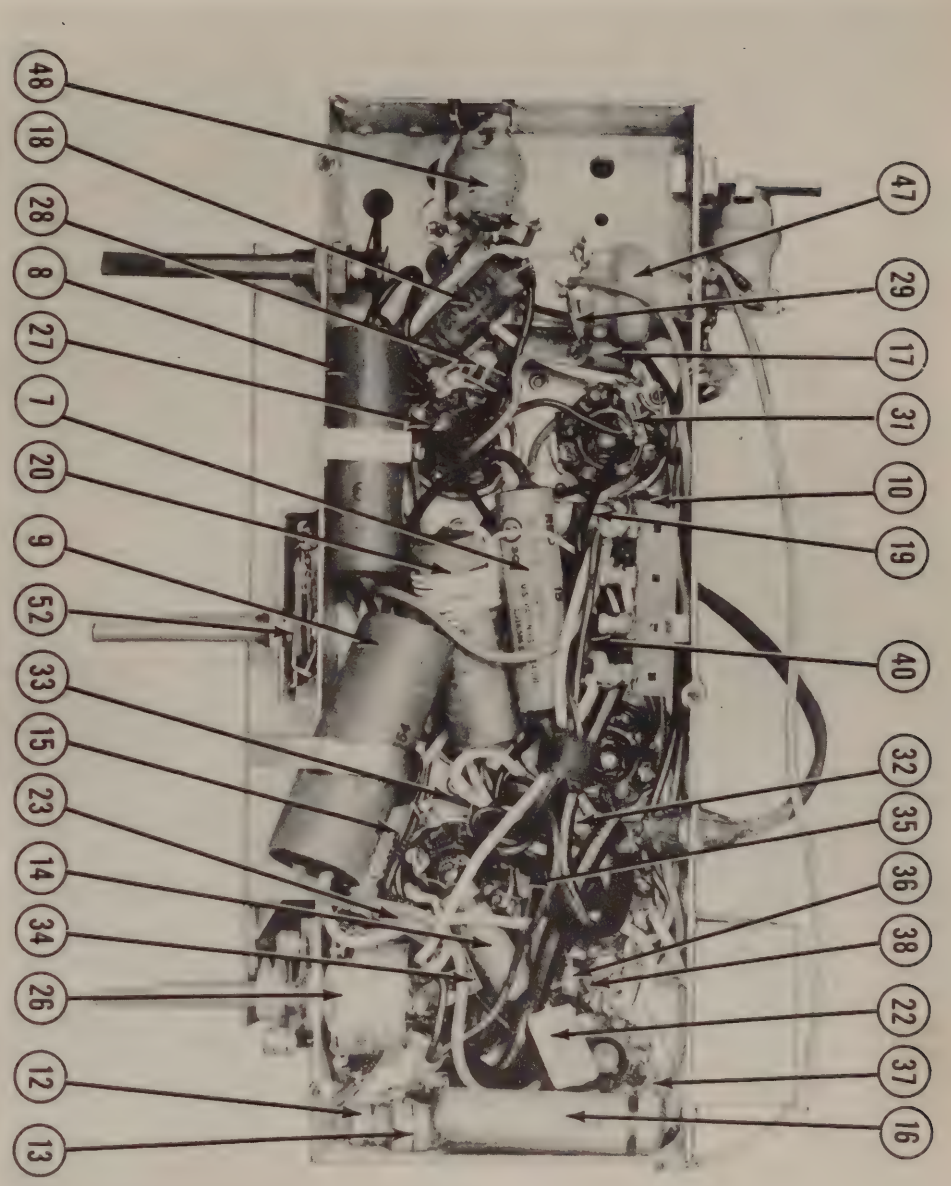
MISCELLANEOUS

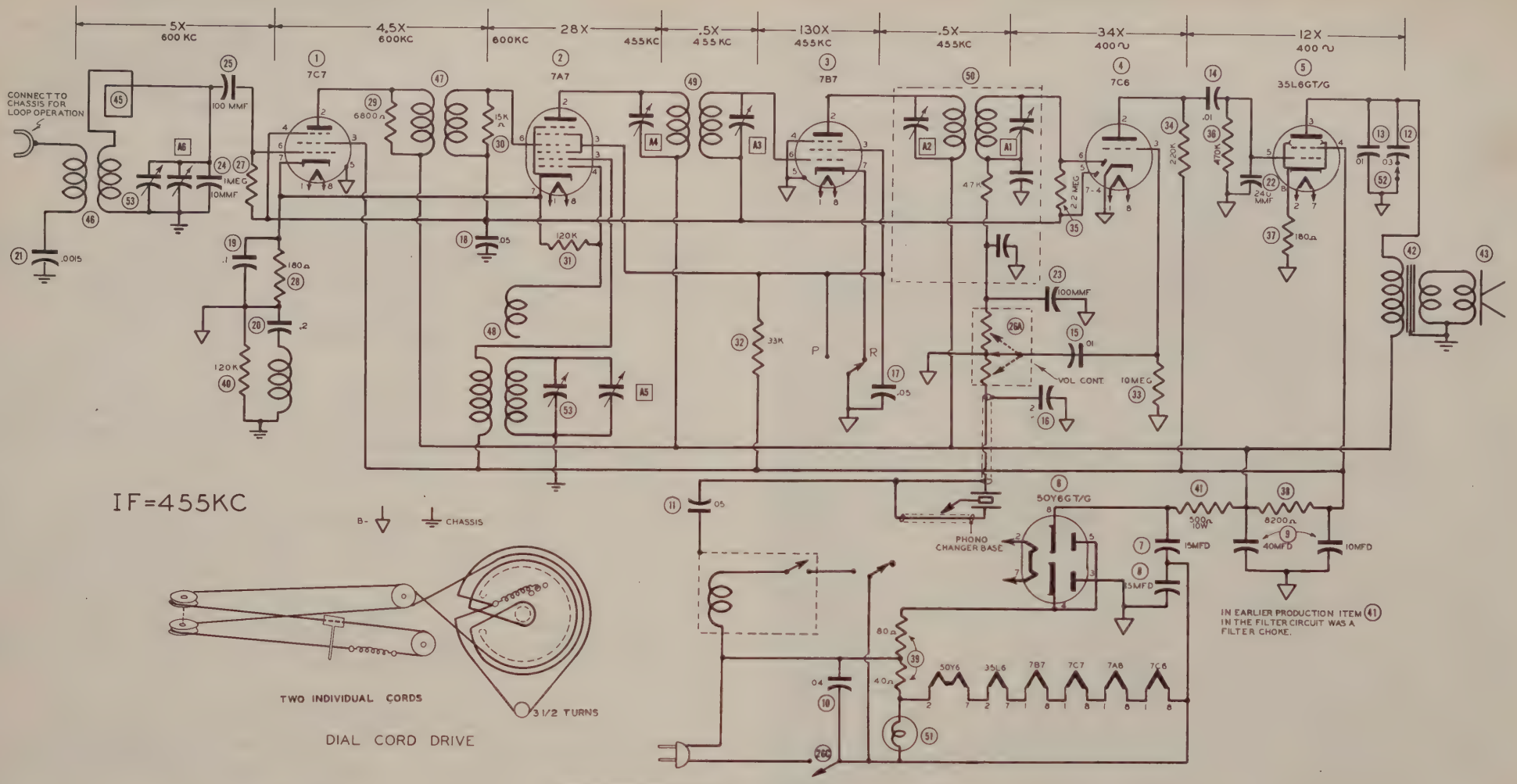
ITEM No.	PART NAME	PHILCO PART No.	NOTES
52	Tone Switch	42-1770	
53	Tuning Cap.	31-2659	2 Gang Variable Cap.
	Filter Choke	32-8252	80Ω DC Resistance
	Knob	54-4115	
	Dial Scale	27-5890	
	Lever	76-1642	Switch Assby.

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type knobs.
2. Remove four Phillips head bolts and nuts holding antenna loop to cabinet.
3. Remove metal clad resistor from back board.
4. Remove four Phillips head screws holding chassis to cabinet.
5. Unsolder two spliced connections from phono. motor.
6. Unsolder phono pickup leads.
7. Remove chassis and antenna loop.
8. Loosen the four Phillips head screws on the two wood chuck blocks attached to speaker wood frame. Slide speaker assembly out of bottom of cabinet.

CHASSIS—BOTTOM VIEW





NOTE: FILAMENT STRING MEASURED FROM LOW END OF STRING. NOT MEASURED FROM B-.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	7C7	18.5VAC	163VDC	107VDC	-.35VDC	0V	-.02VDC	1.4VDC	12.8VAC	
2	7A8	12.8VAC	163VDC	107VDC	-2.45VDC	48VDC	-.35VDC	1.4VDC	6.5VAC	-2.45VDC
3	7B7	24.5VAC	163VDC	48VDC	0V	0V	-.35VDC	0V	18.5VAC	0V
4	7C6	0V	50VDC	-.45VDC	0V	-.35VDC	-.25VDC	0V	6.5VAC	
5	35L6GT	0V	58VAC	145VDC	107VDC	0V	163VDC	24.5VAC	7VDC	
6	50Y6GT	161VDC	58VAC	0V	94VDC	94VDC	107VDC	107VAC	187VDC	7A8

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	17Ω	52KΩ	62KΩ	2.9MEG	0Ω	4 MEG	155Ω	12Ω
2	7A8	12Ω	52KΩ	62KΩ	123KΩ	95KΩ	2.9MEG	180Ω	6Ω
3	7B7	22Ω	52KΩ	95KΩ	0Ω	0Ω	2.9MEG	0Ω	17Ω
4	7C6	0Ω	280KΩ	11 MEG	0Ω	2.9 MEG	540KΩ	0Ω	6Ω
5	35L6GT	0Ω	45Ω	52KΩ	62KΩ	450KΩ	49KΩ	22Ω	160Ω
6	50Y6GT	49KΩ	45Ω	0Ω	125V				

466-23

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

PHILCO - MODEL 46-1203

Page 4 - On the schematic diagram, Item 2 should be 7A8 instead of 7A7.

; AC Voltages

in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PREMIER
MODEL 15LW

PREMIER
MODEL 15LW

PREMIER MODEL 15LW

TRADE NAME	Premier Model 15LW
MANUFACTURER	Premier Crystal Laboratories Inc., 63 Park Row, New York, N.Y.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 7B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	117 Volts AC-DC RATING - .255 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1720KC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	High freq. end.(Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF	High side to ant. clip. Low side to chassis.	1720KC	"	"	A5	" " " "
"	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PREMIER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	7B7	7B7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PREMIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150		2N513	M-2x30-150	TA-330	PRSA150-40-40	BRL3315	Filter - Blue
B	30	150		TC47	M-30-150	UT-301	PRS150-30	BR3015	" - "
C	30	150							" - Red
7	50	50		TC39	M-50-50	TA-550	PRS50-50	BR505	Cath. Bypass
8	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
9	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	50A5 Plate Bypass
10	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
11	.02	600		TP412	S-6-02	TC-12	684-02	DT6S2	" "
12	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supp.
13	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	250	500		MC240	M0.5-325	1FM-325	1468-00025	5W5T25	50A5 Grid Bypass
15	250	500		MC240	M0.5-325	1FM-325	1468-00025	5W5T25	IF Bypass Vol. Cont.
16	100	500		MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PREMIER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500K	1	34-1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

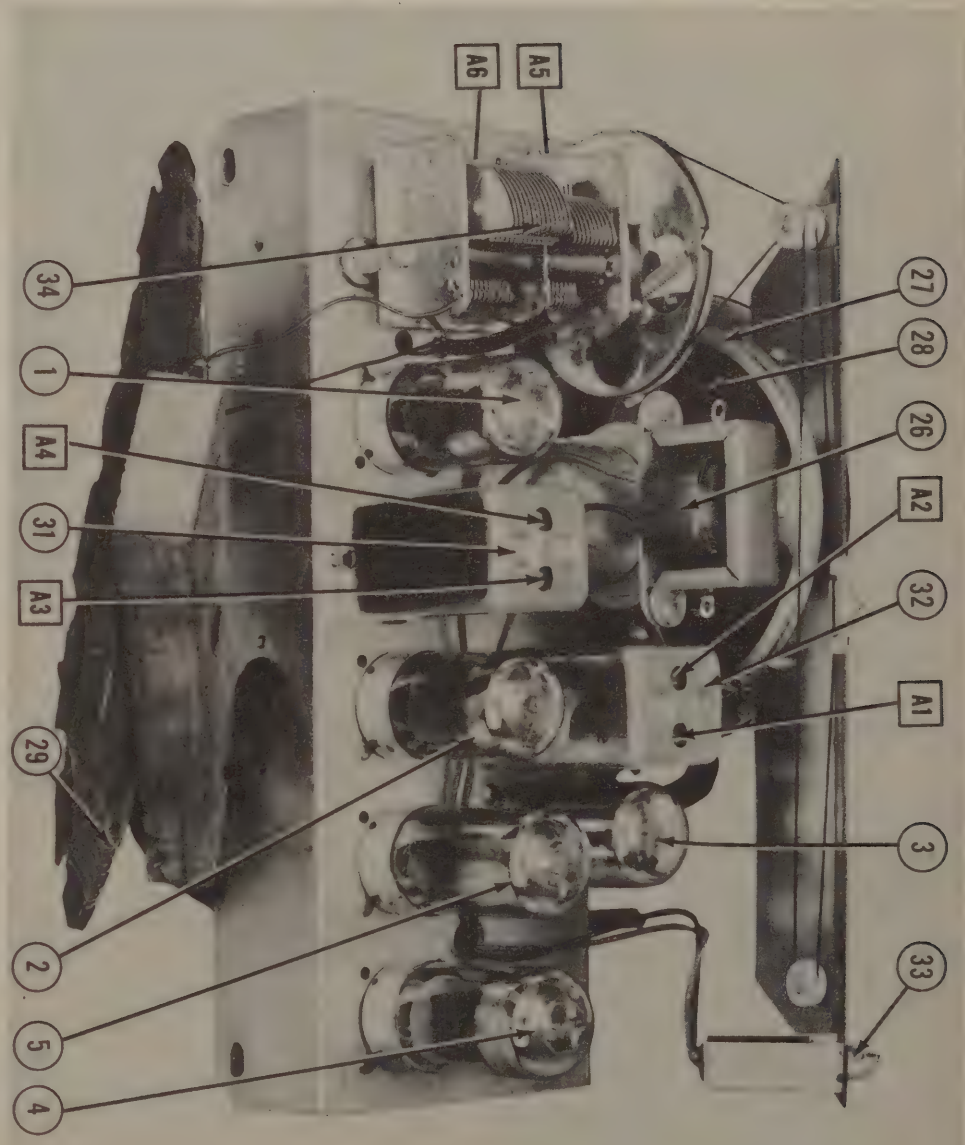
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PREMIER PART No.	IRC PART No.	IDENTIFICATION CODES
18	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
19	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
20	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
21	270KΩ	½		BTS-270K	Red-Vi.-Yl. 1st AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	130Ω	1		BW-1-130	Br.-Or.-Br. Output Cathode
24	330Ω	2		BW-2-330	Or.-Or.-Br. Filter
25	330Ω	½		BW-½-330	Or.-Or.-Br. "

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PREMIER PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
26	1700Ω	3.2Ω	180Ω	.65Ω	DX5044	A-3876	T-22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA PREMIER PART No.	JENSEN PART No.		INSTALLATION NOTES
27	FIELD / PM	VC IMP. / 3.2Ω	51-1A	ST-107* Mod. P5-V		*Fabricate new mounting bracket.
28	CONE DIA. / 4-3/4"	VC DIA. / 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

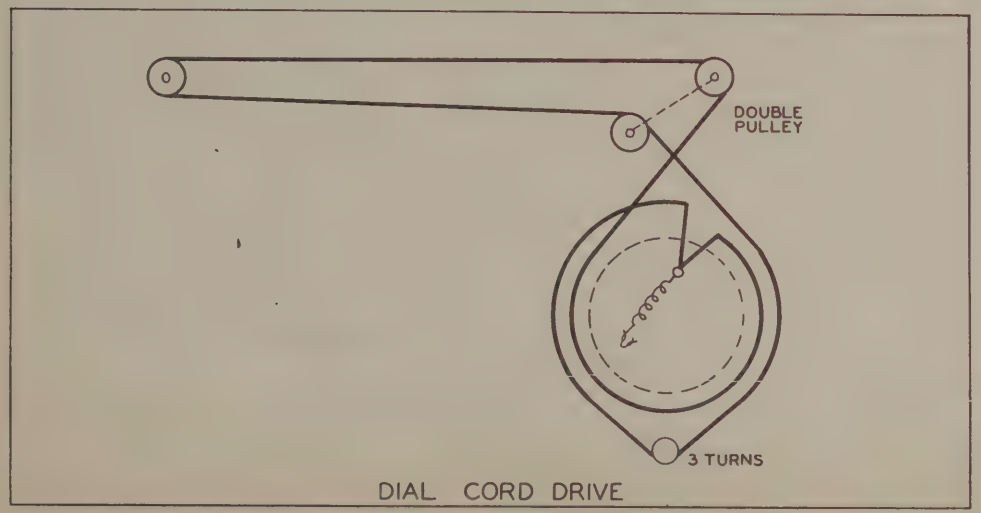
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PREMIER PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
29	Loop Ant.		.8Ω			
30	Osc. Coil	.5Ω	4.5Ω	42-1	14-1040	
31	Input IF	14Ω	14.5Ω		16-6658	
32	Output IF	11.5Ω	14Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PREMIER PART No.		INSTALLATION NOTES
33	Bayonet	6-8	0.15	Brown			Type 47

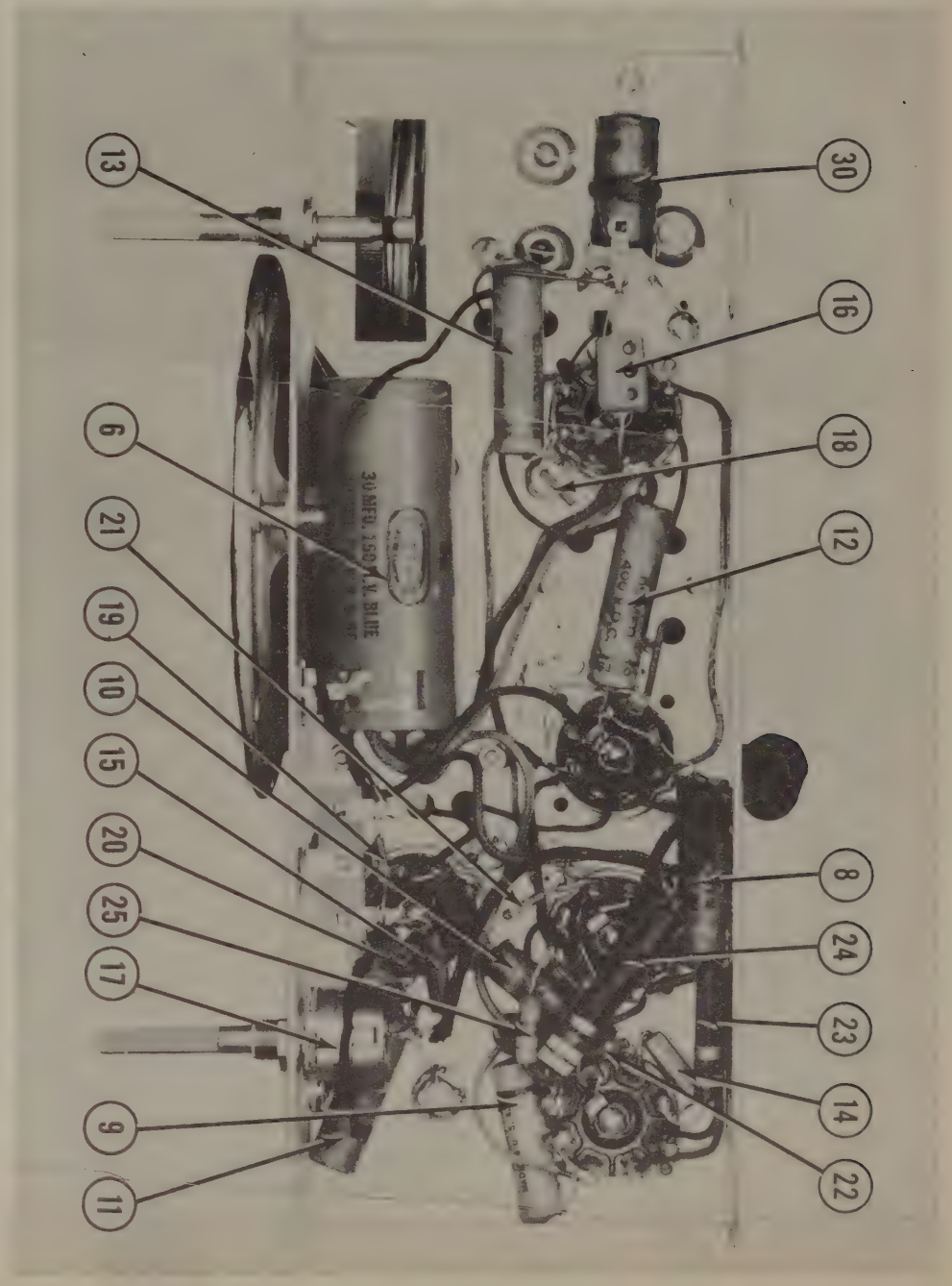
MISCELLANEOUS

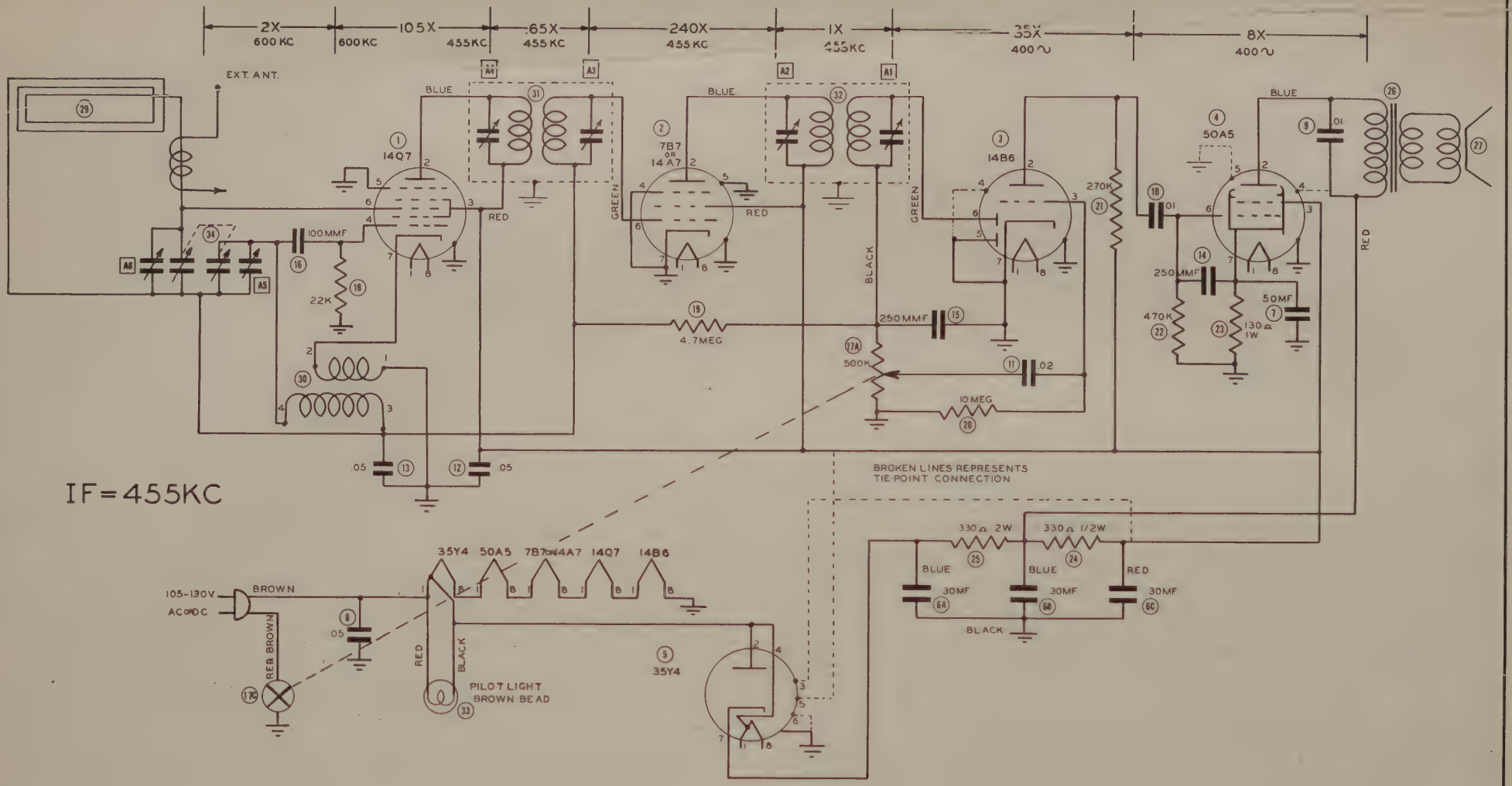
ITEM No.	PART NAME	PREMIER PART No.	NOTES
34	Tuning Cap.		2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	27VAC	87VAC	87VDC	-67VDC	0V	-.35VDC	0V.	135VAC
2	7B7	33.5VAC	87VDC	87VDC	0V.	0V.	-.35VDC	0V.	27VAC
3	14B6	13.5VAC	55VDC	-65VDC	0V.	0V.	-.75VDC	0V.	0V.
4	50A5	84VAC	88VDC	87VDC	95VDC	0V.	0V.	48VDC	33.5VAC
5	35Y4	117VAC	112VAC	87VDC	112VAC	87VDC	0V.	115VDC	84VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24 Ω	75K Ω	75K Ω	20K Ω	0 Ω	4.5MEG	.5 Ω	125 Ω
2	7B7	30 Ω	75K Ω	75K Ω	0 Ω	0 Ω	4.5MEG	0 Ω	24 Ω
3	14B6	12.5 Ω	340K Ω	8MEG	0 Ω	0 Ω	530K Ω	0 Ω	0 Ω
4	50A5	73 Ω	75K	75K Ω	75K Ω	0 Ω	520K Ω	115 Ω	30 Ω
5	35Y4	100 Ω	97 Ω	75K Ω	97 Ω	75K Ω	0 Ω	7.5K Ω	73 Ω

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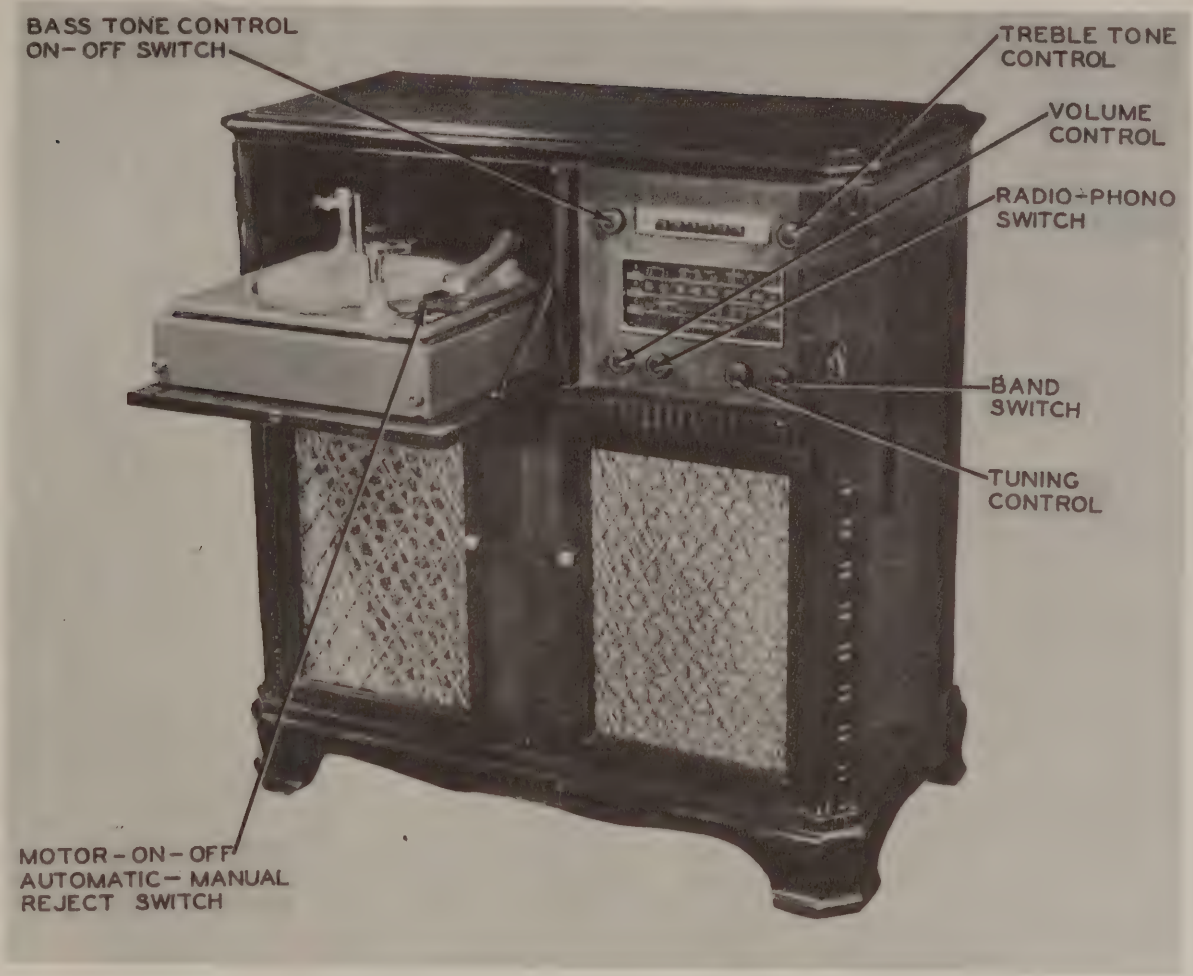
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



RCA VICTOR
MODELS 59AV1, 59V1
PAGE 1

RCA VICTOR MODEL 59AV1

TRADE NAME	RCA Victor Models 59V1, 59AV1 (Chassis No. RC605)
MANUFACTURER	Radio Corp. of America, RCA Victor Division - Camden, New Jersey
TYPE SET	AC Operated Combination Radio & Automatic Phonograph. Superheterodyne Radio with Self-Contained Loop Antenna and Automatic Tuning. Automatic Changer Model 960001-2 with Record Capacity of Fourteen 10 Inch or Twelve 12 Inch Types. Cabinet has Record Storage Compartment.
TUBES (NINE)	6SG7 RF Amp., 6SA7 1st Det.-Osc., 6SK7 IF Amp., 6R7 Pre-Amp., 6SQ7 2nd Det.-AF-AVC, 6SQ7 Phase Inverter, 2-6F6G Power Output, 5U4G Rectifier.
POWER SUPPLY	105-125 Volts AC Rating - Radio Section Only .430 Amps. @ 117V AC Phono Motor Consumption Approx. 30 Watts.
TUNING RANGE	Broadcast ("A") 540-1600KC Short Wave ("B") 2.3-6.3MC ("C") 9.4-15.4MC
PHONOGRAPH	For Information on Automatic Changer Service, Refer to RCA Victor Service Data for Model 960001-2.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SG7	6SG7	8BK	
2	1st Det.-Osc.	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Pre-Amp.	6R7	6R7	7V	
5	2nd Det.-AF-AVC	6SQ7	6SQ7	8Q	
6	Phase Inverter	6SQ7	6SQ7	8Q	
7	Power Output	6F6G	6F6G	7S	
8	Power Output	6F6G	6F6G	7S	
9	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
10A	20	450	34533	FP339	DY-2x20-450/20-25	EL-220	AF44J4A	UP6BJ38	■ Filter 86042
B	15	350						6R502	▲ "
C	40	25			M-25-25*	TA-50	PRS25-25		"
11A	15	450	34889	FP234	DY-2x20-450	EL-220	AF44J	UP6BJ38	■ " 86031-1
B	15	450							▲ "
12	.0035	1000	70646	TP407	S-6-004	TC-24	684-004	DT6D4	6F6 Plate Bypass
13	.0035	1000	70646	TP407	S-6-004	TC-24	684-004	DT6D4	" " "
14	.01	600	70631	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
15	.005	400	70606	TP408	S-6-005	TC-25	484-005	DT6D5	" "
16	.01	600	70631	TP410	S-6-01	TC-11	684-01	DT6S1	Tone Compensation
17	.0025	600	70623	TP406	S-6-003	TC-23	684-003	DT6D3	" "
18	.005	600	70627	TP408	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
19	.25	200	70618	TP430	S-4-25	TC-2	484-.25	DT4P25	Bias Filter
20	.015	400		TP400	S-4-2	TC-12	484-015	DT4S15	Tone Compensation
21	.02	400	70611	TP423	S-4-02	TC-12	484-02	DT4S2	"" ""
22	.01	400	70610	TP421	S-4-01	TC-11	484-01	DT4S1	" "
23	.01	600	70631	TP410	S-6-01	TC-11	684-01	DT6S1	IF Plate Bypass
24	.25	200	70618	TP430	S-4-25	TC-2	484-.25	DT4P25	Bias Filter
25	.0015	600	71394	TP405	S-6-002	TC-22	684-002	DT6D2	Phono Coupling
26	.005	400	70606	TP408	S-6-005	TC-25	484-005	DT6D5	Tone Compensation
27	.1	400	70617	TP428	S-4-1	TC-1	484-.1	DT4P1	IF Screen Bypass
28	.05	400	70615	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
29	.005	600	70627	TP408	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
30	.0025	600	70623	TP406	S-6-003	TC-23	684-003	DT6D3	6R7 Plate Bypass
31	.01	600	70631	TP410	S-6-01	TC-11	684-01	DT6S1	IF Cath. Bypass
32	.01	600	70631	TP410	S-6-01	TC-11	684-01	DT6S1	RF Plate Decoup.
33	.1	400	70617	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Screen Bypass
34	560	500	39646	MC245	MO.5-36	MS-36	1468-0005	1W5T6	Audio Coupling
35	100	500	39628	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
36	180	500	39634	MC237	MO.5-32	1FM-32	1468-0002	5W5T2	IF Bypass Diode
37	56		60954	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap. Cer. Fixed Padder
38	226	500	38830						
39	630	300	38831						Osc. Feedback PB
40	2200		39660						" " "
41	120	500	39630	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling
42	120	500	39630	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	" "

*Parallel with bypass section of DY

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
43A	1.5 Meg	1	36447	DTM291	D18-139XX	T95	Volume Control 84779-8
B	Shaft		Not Req.	SS1	A	Not Req.	Attach to 43A per instructions
44A	2 Meg.	1	38402	MR55	D13-139	M-66-Z	Bass Tone Control 84779-42
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 44A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
45A	1 Meg.	1	38405	MR53	D13-137	M-63-Z	Treble Tone Control 97900-10
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 45A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
46	1500Ω	½	30654	BTS-1500	Br.-Grn.-Red RF Plate Load
47	1000Ω	½	34766	BTS-1000	Br.-Blk.-Red RF Plate Filter
48	39KΩ	½	30147	BTS-39K	Or.-White-Or. RF Screen Dropping
49	47KΩ	½	30737	BTS-47K	Yl.-Vi.-Or. Converter Grid
50	56KΩ	½	30650	BTS-56K	Grn.-Blue-Or. Osc. Grid
51	2.2 Meg.	½	30649	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
52	2.2 Meg.	½	30649	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
53	68KΩ	½	14138	BTS-68K	Blue-Gray-Or. IF Screen Dropping
54	1000Ω	½	34766	BTS-1000	Br.-Blk.-Red IF Plate Filter
55	22KΩ	½	30492	BTS-22K	Red-Red-Or. Tone Compensation
56	100KΩ	½	3252	BTS-100K	Br.-Blk.-Yl. Pre-Amp. Grid
57	56KΩ	½	30650	BTS-56K	Grn.-Blue-Or. Pre-Amp. Plate Load
58	15KΩ	½	36714	BTS-15K	Br.-Grn.-Or. Filter
59	270KΩ	½	30651	BTS-270K	Red-Vi.-Yl. Diode Load
60	270KΩ	½	30651	BTS-270K	Red-Vi.-Yl. Series Volume Control
61	270KΩ	½	30651	BTS-270K	Red-Vi.-Yl. 1st AF Plate Load
62	1 Meg.	½	30652	BTS-1 Meg.	Br.-Blk.-Grn. Tone Compensation
63	15KΩ	½	36714	BTS-15K	Br.-Grn.-Or. Tone Compensation
64	27KΩ	½	30409	BTS-27K	Red-Vi.-Or. Tone Compensation
65	270KΩ	2	30651	BTS-270K	Red-Vi.-Yl. Phase Inverter Plate Load
66	39KΩ	½	30147	BTS-39K	Or.-White-Or. Phase Inverter Grid
67	2.2 Meg.	½	30649	BTS-2.2 Meg.	Red-Red-Grn. Phase Inverter Grid
68	390KΩ	½	11988	BTS-390K	Or.-White-Yl. Output Grid
69	390KΩ	½	11988	BTS-390K	Or.-white-Yl. Output Grid
70	560KΩ	½	30653	BTS-560K	Grn.-Blue-Yl. Bias Filter
71	1 Meg.	½	30652	BTS-1 Meg.	Br.-Blk.-Grn. Bias Filter
72A	145Ω	3		AB-150	Bias
72B	25Ω	½		BW-1-27	"
72C	10Ω	2	38608	BW-½-10	"
72D	2500Ω	4.2		AB-2500	Voltage Divider
72E	3000Ω	9		AB-3000	" "

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	INSTALLATION NOTES
73A	117V AC @ .430A	750V CT @ .125A	5.0V AC @ 2.3A	6.2V AC @ 3.7A	94160-501	P-6014‡	T-22R06‡	‡Drill new mounting holes.
B					34539†			†Alternate transformer.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
74	11,800Ω	2.6Ω	328Ω CT	.25Ω	37899	A-3856$	T-13S38$		$Drill new mounting holes

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
	FIELD RES.	VC IMP.				
75A	1500Ω	2.6Ω	92513-1K			
B			70548			Alternate Speaker
	CONE DIA.	VC DIA.				
76	11¾"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
77	Loop Ant.	75Ω	2Ω	70544		
78A	"B" Ant.Coil	14Ω	1.2Ω	38367		Items 78A, 78B on same form
B	"C" " "		.1Ω			
79	Peaking "	3Ω		35876		
80A	"A" Osc. "		3.5Ω	38358		Items 80A, 80B, 80C on same form
B	"B" " "		1.2Ω			
C	"C" " "		0Ω			
81	Input IF	8.5Ω	7.3Ω	35636	16-5740	
82	Output IF	8Ω	8Ω	35790	16-5742	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA RCA PART No.		INSTALLATION NOTES
83	Bayonet	6-8	0.2	White	11765		Type 51
84	"	6-8	0.2	"	11765		" "
85	"	6-8	0.2	"	11765		" "

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
86	Range Switch	38807	
87	Switch	38809	Radio - Phono
88	Switch Sel.	38575	Automatic Tuning Selector
89	Tuning Cap.	38800	2 Gang Variable Cap.
A5	Trimmer Cap.	38801	BC Osc. Adj. 8-80 MMF.
A7	" "		"B" SW Osc. Adj. 8-80 MMF.
A9	" "		"C" " " " " "
A8	Trimmer Cap.	38852	"B" SW Ant. Adj. 8-80 MMF.
A10	" "		"C" " " " " "
A11	Padder Cap.	38368	"C" " " Pad 50-350 MMF.
	Trimmer Cap.	36424	B2, B4, B6, B8, B10, B12 Adjs.
	PB Osc. Coil	37638	B1, B3, B5 Adjustments
	" " "	38315	B7, B9, B11 "
	Indicator	35870	Station Selector
	Plate	36333	Dial Back Plate Complete with Pulleys
	Dial Scale	39014	Glass
	Knob	35814	Tone, Radio-Phono, Range SW.,Tun.Vol.

ALIGNMENT INSTRUCTIONS

To set pointer, fully close variable and set pointer 1/16" to the left of the calibration mark near the left end of dial backplate. Remove the dial glass from the cabinet and temporarily attach it to the dial backplate so that the extreme left mark on the dial glass coincides with the pointer when the variable is fully closed. Set volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to pin 4 of 6SK7. Low side to chassis.	455KC	"A"Band	540KC	Across voice coil	A1,A2,	Adjust for maximum output
.01 MFD.	High side to pin 8 of 6SA7. Low side to chassis.	"	"	"	"	A3,A4	" " " "
200 MMF.	High side to yellow loop lead Low side to chassis. (Link closed for loop operation)	1500KC	"	1500KC	"	A5	" " " "
200 MMF.	"	600KC	"	600KC	"	A6	" " " "
Repeat Last Two Steps.							
47 MMF.	High side to ant. terminal. Low side to chassis. (Link closed for loop operation)	6.1MC	"B"Band	6.1MC	"	A7,A8	Adjust for maximum output in order given.
47 MMF.	"	15.2MC	"C"Band	15.2MC	"	A9,A10	"
47 MMF.	"	9.5MC	"	Tune for maximum output.	"	A11	Adjust for maximum output
Repeat Last Two Steps.							
	Loop	1500KC	"A"Band	Tune for maximum output.	"	A12	Install chassis in cabinet with link closed for loop operation. Tune in radiated signal and adjust for maximum output.
	"	600KC	"	"	"	A6	Rock dial and adjust for maximum output. Repeat last two steps until there is no further increase in output.

PUSH BUTTON INSTRUCTIONS

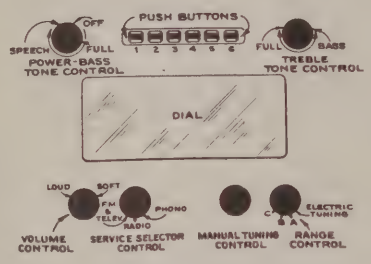
Tuning range of push buttons from left to right facing front of receiver.

540 - 1030KC, 610-1250KC, 610 - 1250KC, 740 - 1430KC, 740 - 1430KC, 880 - 1600KC.

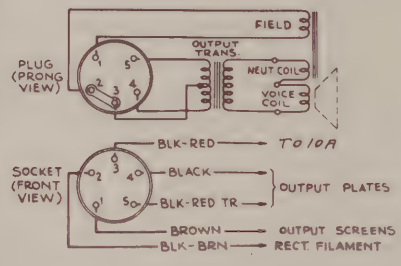
1. Make a list of six desired stations, arranged in order from low to high frequencies making sure each station will fall within the range of the push button to be used.
2. After set has been allowed to warm up for about five minutes, switch to broadcast position and manually tune in the first station on the list.
3. Turn range switch to push button position and press in the left hand button.
4. Adjust B1 to receive the first station. To secure the best adjustment, rotate the loop for least pickup, and adjust B1 for peak output.
5. Adjust B2 for peak output on the first station.
6. Proceed in the same manner for the remaining stations adjusting B3, B5, B7, B9, B11 to tune in station desired. Adjust B4, B6, B8, B10, B12 for peak output.
7. Repeat adjustments for best results.

CRITICAL LEAD DRESS

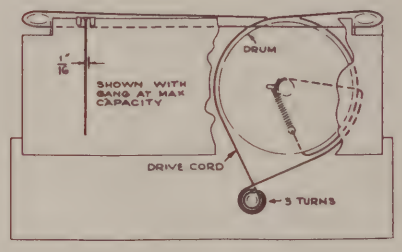
1. Push button, R.F. and oscillator leads should be separated as much as possible to reduce degeneration on push button reception.
2. R.F. Choke in plate circuit of 6SG7 should be dressed towards the back apron.
3. Dress green push button lead under clamp and away from "C" band series capacitor.
4. Dress heater leads away from grids and diodes.
5. Dress phono. cables up and away from all wiring.
6. Dress all excess leads from transformer back towards transformer.
7. Keep output plate leads short and dressed close to chassis.
8. Dress green lead from 6SA7 screen to electrolytic down close to chassis.
9. Dress "C" band coil lead from oscillator coil to range switch down toward green lead.
10. Keep yellow loop lead clear of all wiring.
11. Dress ground bus of large electrolytic away from mounting lug.
12. Remove all excess slack from pilot light assembly and dress it close to chassis base away from volume control.
13. Dress oscillator grid capacitor (56 mmfd.) up and away from the screen and plate of 6SA7 socket.
14. A-C leads to "off-on" switch should be kept away from tone control cable to reduce hum .
15. Peaking coil should be dressed away from R-F grid resistor to reduce degeneration in R-F stage.
16. Dress oscillator push button lead in weld clamp on front apron away from 220 mmf. series condenser.
17. Keep all leads away from Phono-FM jack to prevent audio oscillation and hum. Dress underneath the shield provided.



Front Panel Controls



Speaker Connections



Dial Cord Drive

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SG7	0V	6.4V. AC	0V	-.45V.DC	0V	97V. DC	0V	177V. DC	
2	6SA7	0V	0V	195V. DC	83V. DC	-.15V. DC	0V	6.4V.AC	0V	
3	6SK7	0V	0V	0V	-1V. DC	0V	67V. DC	6.4V.AC	187V. DC	
4	6R7	0V	0V	90V. DC	0V	0V	-.15V. DC	6.4V. AC	0V	-1V. DC
5	6SQ7	0V	-.25V.DC	0V	0V	-.2V. DC	80V. DC	6.4V. AC	0V	
6	6SQ7	0V	-.2V. DC	0V	0V	0V	75V. DC	6.4V. AC	0V	
7	6F6G	0V	6.4V. AC	320V.DC	195V. DC	-.05 V.DC	0V	0V	0V	
8	6F6G	0V	6.4V. AC	320V.DC	195V. DC	0V	159V.DC	0V	0V	
9	5U4G	0V	340V. DC	340V.DC	375V.AC	0V	375 V.AC	0V	340V.DC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SG7	0Ω	0Ω	0Ω	4 MEG	0Ω	43K Ω	0Ω	8K Ω	
2	6SA7	0Ω	0Ω	5.5 K Ω	2500 Ω	60K Ω	.5 Ω	0Ω	43K Ω	
3	6SK7	0Ω	0Ω	0Ω	2.5MEG	0Ω	70K Ω	0Ω	6.5K Ω	
4	6R7	0Ω	0Ω	80K Ω	1 NF	0Ω	1 MEG	0Ω	0Ω	1.1 MEG
5	6SQ7	0Ω	1.8 MEG	0Ω	0Ω	300K Ω	320K Ω	0Ω	0Ω	
6	6SQ7	0Ω	600K Ω	0Ω	0Ω	0Ω	310K Ω	0Ω	0Ω	
7	6F6G	0Ω	0Ω	7.2K Ω	5.5 K Ω	380K Ω	1 NF	0Ω	0Ω	
8	6F6G	0Ω	0Ω	7.2 K Ω	5.5 K Ω	380K Ω	19K Ω	0Ω	0Ω	
9	5U4G	0Ω	7K Ω	7K Ω	125 Ω	1 NF	135 Ω	1 NF	7K Ω	

NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN WITH RANGE SWITCH IN STANDARD BROADCAST POSITION

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

1 - DC Voltage measurements are 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.

2 - Socket connections are shown as bottom views.

3 - Measured values are from socket pin to common negative.

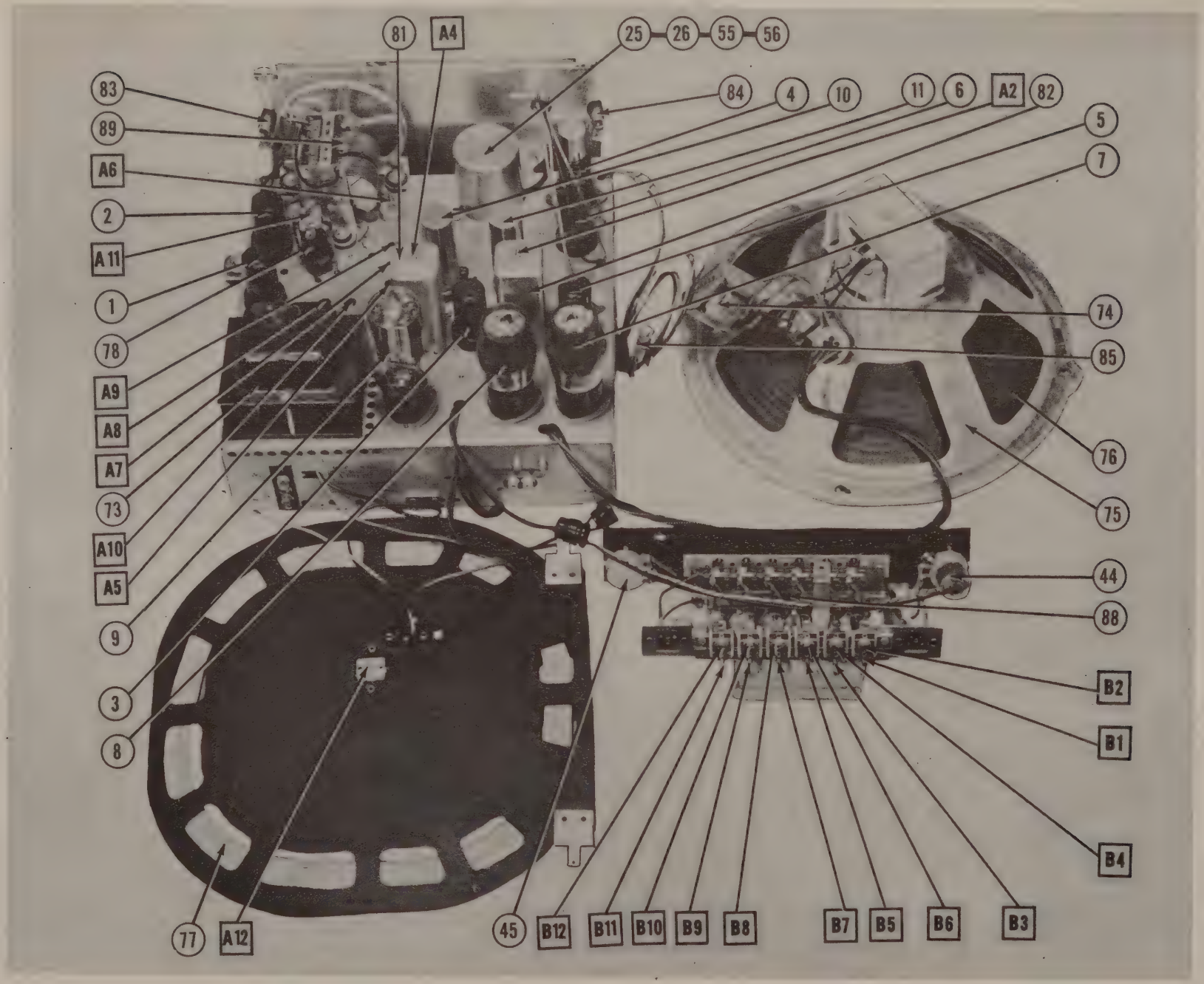
4 - Line voltage maintained at 117 volts for voltage readings.

5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.

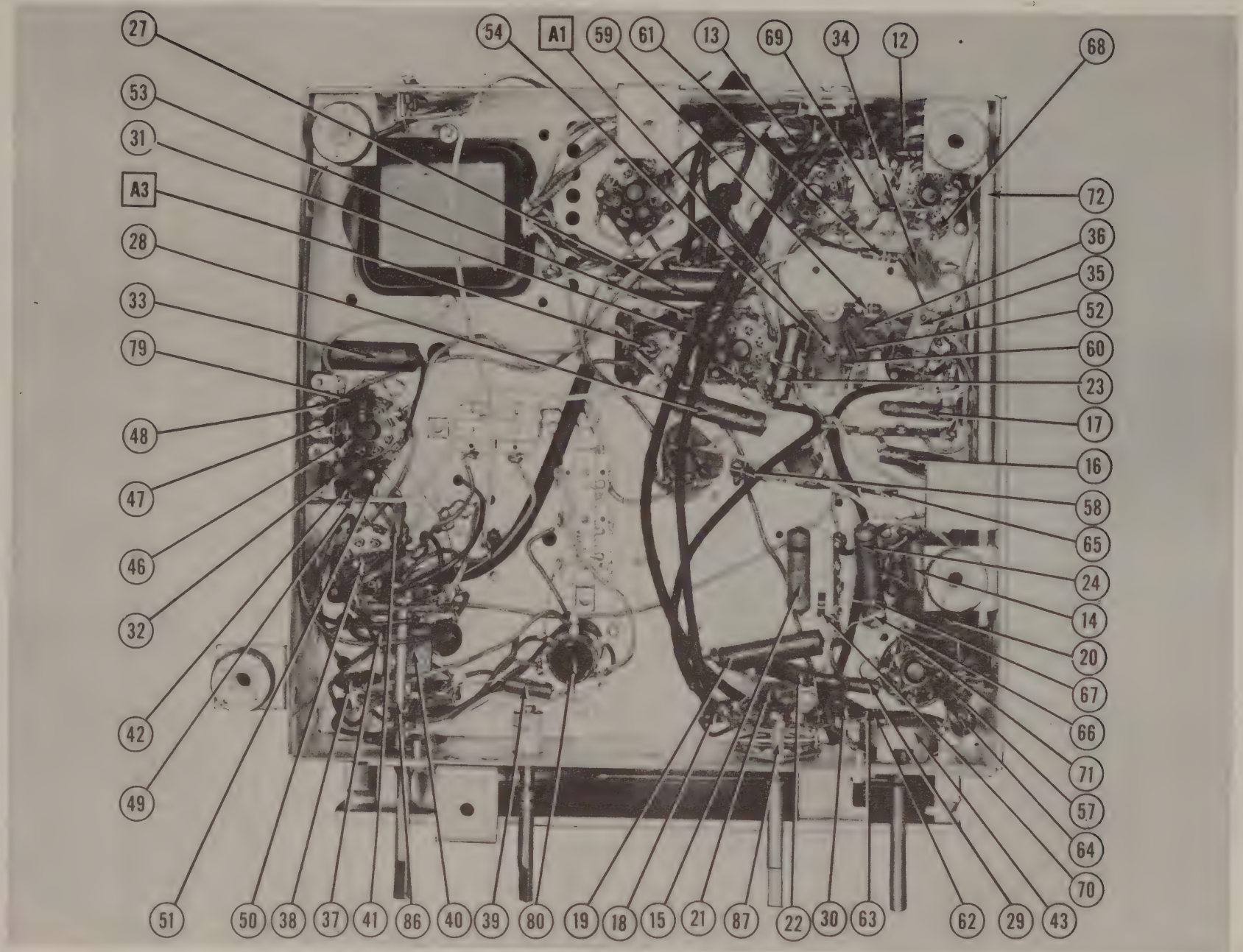
6 - Volume control at maximum, no signal applied for voltage measurements.

466-25
IF=455KC
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RANGE SWITCH VIEWED FROM FRONT, AND SHOWN IN PB(MAX. COUNTER-CLOCKWISE) POSITION.
6SG7 R.F.
6SA7 1ST DET & OSC
6SK7 I.F.
6R7 PREAMP
6SQ7 2 ND. DET. A.F. & A.V.C.
6SQ7 PH. INVER.
6F6G OUTPUT
5U4G RECT.
POWER SUPPLY
OSC COIL
PICKUP
MOTOR
SHORTING SWITCH
PHONO
FIELD
LINK ON SPKR PLUG
ON-LOW TONE CONT.
VOL. CONTROL 1.5 MEG TOTAL TAP AT 300M & 250K
HI FREQ TONE CONTROL 1MEG
LOW FREQ TONE CONTROL 2 MEG.
FM & TEL JACK
ANT. WIRE IN CABINET
LINK CLOSED FOR LOOP OPERATION
LOOP 1.5a
FRONT
REAR
B-PRL
8-80
50-390
2-20
14-344
100-340
130-400
23-230
10-180
6 X
8 X
6.5 X
12 X
13 X
50 X
600 KC
455 KC
240 X
400 ~

SPEAKER, CHASSIS, LOOP ANTENNA, AUTOMATIC TUNING



CHASSIS—BOTTOM VIEW



REMOVAL OF RADIO CHASSIS, SPEAKER AND LOOP ANTENNA FOR SERVICE OPERATIONS.

1-Remove the six push-on type control knobs from the radio dial.

2-Disconnect the yellow, red, and black plugs from the loop antenna jacks.

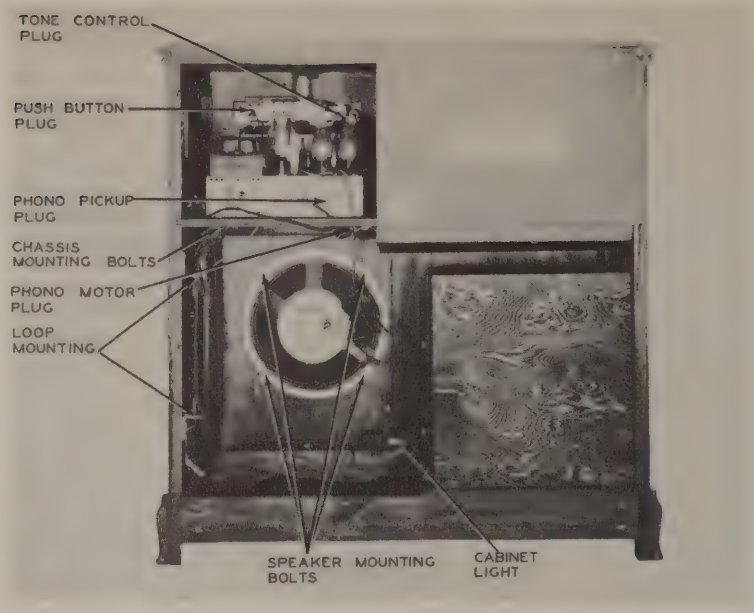
3-Disconnect the phono-pickup plug from socket.

4-Disconnect the phono-pickup plug from back of chassis.

5-Disconnect power on-off plug from cord and socket protruding from top of chassis.

6-Disconnect phono-motor plug from cord and socket on back of chassis.

7-Disconnect black lead from antenna lock screw on terminal strip on back of chassis.



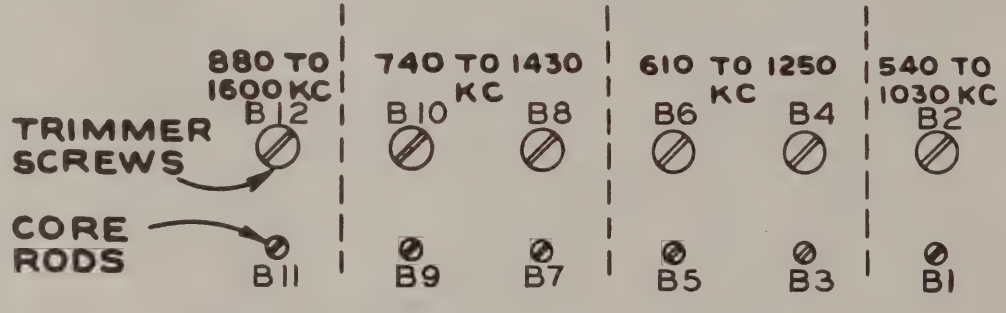
8-Disconnect two plugs; one to the push button tuning and the other to the tone control.

9-Remove the two wood screws from the push button assembly plate.

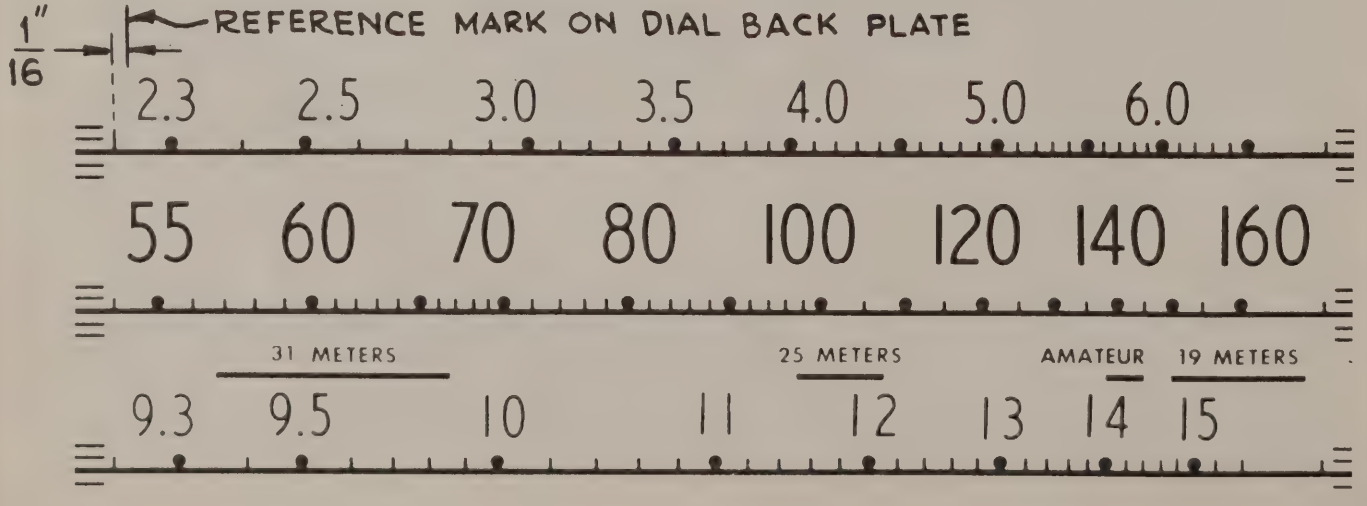
10-Remove the wood screw from the push button assembly top bracket.

11-Remove four bolts and lock washers from chassis. Remove chassis.

12-Remove four nuts and lock washers holding speaker to cabinet. Remove speaker.



AUTOMATIC TUNING ADJUSTMENT LAYOUT



In the event that chassis only is available for service (glass dial scale unavailable) the full size scale reproduced above may be used for reference during alignment.

SENTINEL
MODELS 285P, IU-285P

SENTINEL
MODELS 285P, IU-285P

SENTINEL MODEL 285P

TRADE NAME	Sentinel Models 285P, IU-285P
MANUFACTURER	Sentinel Radio Corp., 2020 Ridge Ave., Evanston, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 1N5GT RF Amp., 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output, 117Z6GT Rectifier.
POWER SUPPLY RATING	110-120 Volts AC-DC or 2-4½ Volt "A" Batteries & 2-45 Volt "B" Batteries .195 Amps. @ 117V AC - 56MA @ 9 Volts DC and 12MA @ 90 Volt DC
TUNING RANGE—BROADCAST	535-1650KC

ALIGNMENT INSTRUCTIONS

When set is aligned on AC-DC use isolation transformer if available. If not, connect a capacitor in series with the low side of the signal generator and common negative. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
2 MFD.	High side to grid cap of 1A7. Low side to common negative.	455KC	Any point where no interfering signal is received.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
Direct	Across 1 megohm resistor.	"	Variable fully closed.	"	A5	Disconnect the white-green and white-black loop connection wires from the loop ant. trimmer. Attach a 1 megohm resistor across these wires and feed output of signal generator across this resistor. Adjust for minimum.
Direct	"	1650KC	Variable fully open.	"	A6	Adjust for maximum output.
Direct	High side to ext. ant. clip. Low side to ext. ground.	1400KC	Tune for maximum output.	"	A7	Remove 1 megohm resistor and reconnect loop ant. trimmer. Reinstall chassis in cabinet & adjust A7 for maximum output with the back in closed position

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: SENTINEL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1N5GT	1N5GT	5Y	
2	Converter	1A7GT	1A7GT	7Z	
3	IF Amp.	1N5GT	1N5GT	5Y	
4	Det.-AVC-AF	1H5GT	1H5GT	5Z	
5	Power Output	3Q5GT	3Q5GT	7AP	
6	Rectifier	117Z6GT	117Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SENTINEL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	25E1	FP214	DY-2x50-150	EL-25	AF1010D	UP4BJ33	■ Filter
B	50	150							▲ "
8A	40	25	25E4	WP520†	DY-2x40-150	EL-242	AF88D		■ Fil. Filter
B	40	25							▲ " "
9	.002	400	23E405	TP405	S-6-002	TC-22	484-002	DT6D2	Line Isolation
10	.05	400	23E416	TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
11	.005	400	23E408	TP408	S-6-005	TC-25	484-005	DT6D5	RF Bypass Pwr. Supp.
12	.1	400	23E418	TP428	S-4-1	TC-1	484-.1	DT4P1	Screen Bypass
13	.003	400	23E406	TP406	S-6-003	TC-23	484-003	DT6D3	3Q5 Plate Bypass
14	.05	400	23E416	TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
15	.1	200	23E218	TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Plate Decoup.
16	.003	400	23E406	TP406	S-6-003	TC-23	484-003	DT6D3	Audio Coupling
17	.05	200	23E216	TP426	S-4-05	TC-15	484-05	DT4S5	IF Grid Capacitor
18	.05	400	23E416	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
19	.1	200	23E218	TP428	S-4-1	TC-1	484-.1	DT4P1	Filament Bypass
20	.1	200	23E218	TP428	S-4-1	TC-1	484-.1	DT4P1	"
21	.05	200	23E216	TP426	S-4-05	TC-15	484-05	DT4S5	RF Screen Bypass
22	.1	200	23E218	TP428	S-4-1	TC-1	484-.1	DT4P1	Filament Bypass
23	.2	400	23E421	TP429	S-4-3	TC-2	484-.2	DT4P2	Line Isolating *
24	.1	200	23E218	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
25	100	500	23E39	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
26	100	500	23E39	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Audio Grid Bypass
27	100	500	23E39	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	IF Bypass Vol. Cont.
28	250	500	23E42	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Osc. Grid Capacitor
29	250	500	23E42	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	RF Coupling

CONTROLS

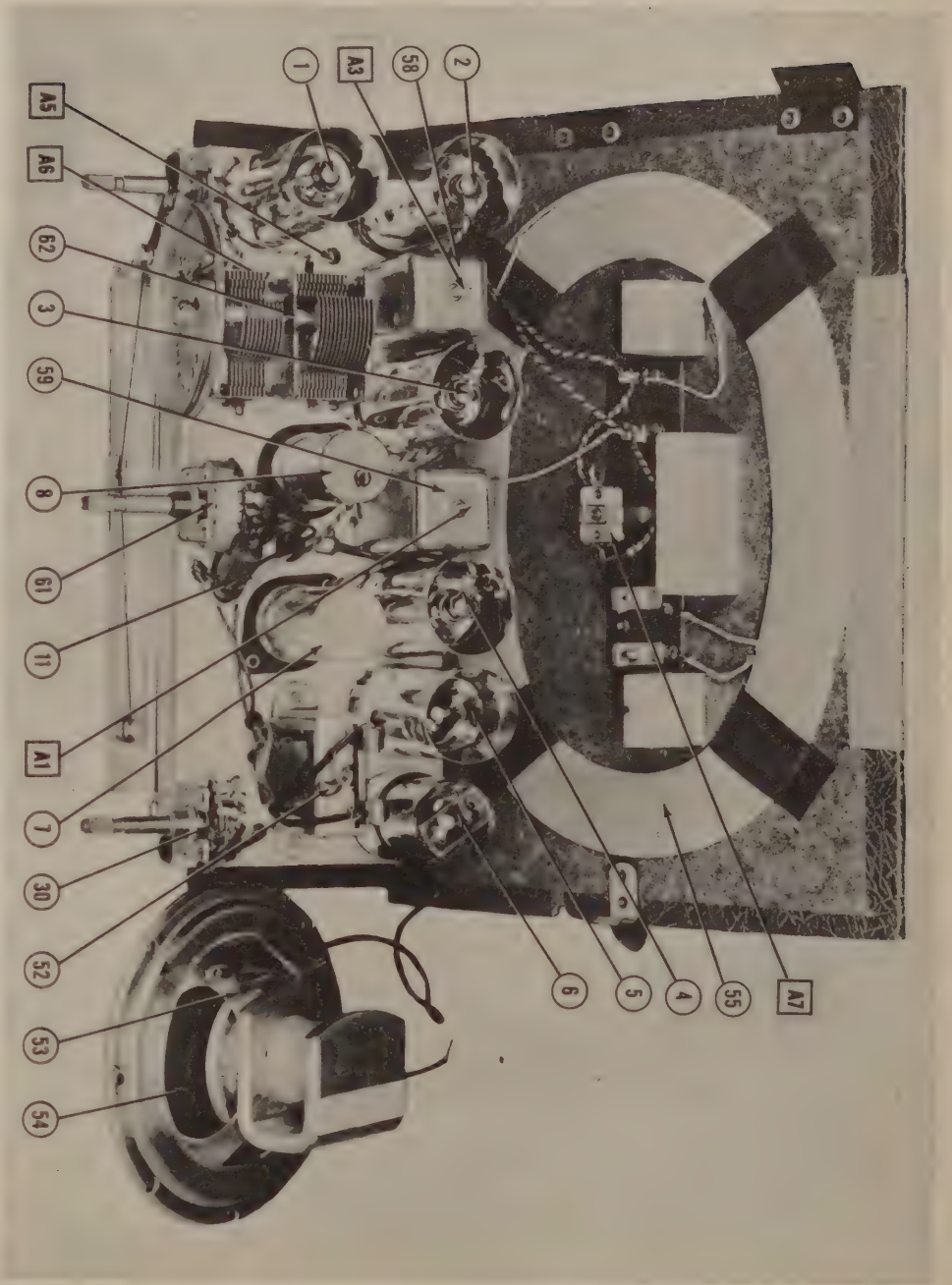
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SENTINEL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
30A	1 Meg.	1	28E6	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 30A per instructions.
30A	1 Meg.	1	28E12*	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 30A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SENTINEL PART No.	IRC PART No.	IDENTIFICATION CODES
31	22KΩ	1/3	27E223	BTS-22K	Red-Red-Or. RF Screen Dropping
32	47KΩ	1/3	27E473	BTS-47K	Yl.-Vi.-Or. RF Plate Load
33	6.8 Meg.	1/3	27E685	BTS-6.8 Meg	Blue-Gray-Grn. AVC Network
34	6.8 Meg.	1/3	27E685	BTS-6.8 Meg	Blue-Gray-Grn. AVC Network
35	220KΩ	1/3	27E224	BTS-220K	Red-Red-Yl. Converter Grid
36	560Ω	1/3	27E561	BTS-560	Grn.-Blue-Br. Filament String
37	100KΩ	1/3	27E104	BTS-100K	Br.-Blk.-Yl. Osc. Grid
38	390Ω	1/3	27E391	BW-½-390	Or.-White-Br. Filament String
39	68KΩ	1/3	27E683	BTS-68K	Blue-Gray-Or. Osc. Screen Dropping
40	270KΩ	1/3	27E1002	BTS-270K	Red-Vi.-Yl. IF Grid
41	3.3 Meg.	1/3	27E335	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
42	10 Meg.	1/3	27E106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
43	1 Meg.	1/3	27E105	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
44	100KΩ	1/3	27E104	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Filter
45	1 Meg.	1/3	27E105	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
46	390Ω	1/3	27E391	BW-½-390	Or.-White-Br. Filament String
47	560Ω	1/3	27E561	BTS-560	Grn.-Blue-Br. Filament String

*Used in Underwriters approved models only.
†Do not use last section.

CHASSIS—TOP VIEW



48	220KΩ	1/3	27E224	BTS-220K	Red-Red-Yl. Line Isolating*
49	68Ω	1/3	27E680	BW-½-68	Blue-Gray-Blk. B+ Lead Bat. Position*
50	75Ω	2	27E1001	BW-2-82	Vi.-Grn.-Blk. Pilot Light Shunt
51	500Ω-1900Ω	10	27E1000	ABA-2500‡	Filter & Filament Dropping

‡Adjust tap to 500Ω from one end.
*Used in Underwriters approved models only.

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA SENTINEL PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
52A	7500Ω	3.3Ω	620Ω	.64Ω	22E7*	A-3878	T-22S47		
52B					22E9				

*Used in Underwriters approved model only.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA SENTINEL PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
53	PM	3.3Ω	1E12	ST-105 Mod. P5-V		
	CONE DIA.	VC DIA.				
54	4-3/4"	1/2"	SPEAKER CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

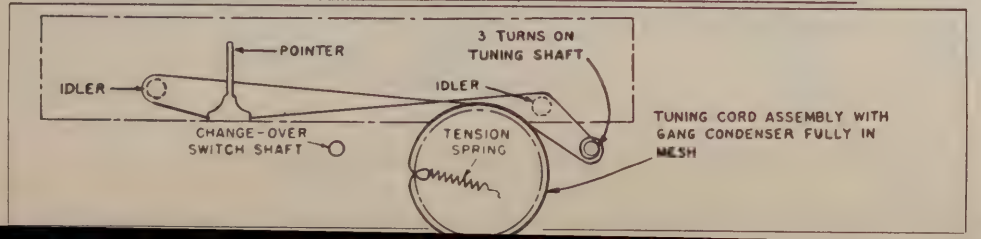
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SENTINEL PART No.	MEISSNER PART No.	INSTALLATION NOTES
55A	Loop Ant.			20E82		Honey Comb. Type Used In Some Sets.
B	" "	0Ω	.5Ω	20E160-1		Flat Wound Type Used in Other Sets
56	Wave Trap	55Ω		2E19		
57	Osc. Coil	1.5Ω	5.5Ω	20E52	14-1040	
58	Input IF	14.5Ω	13.6Ω	20E53	16-6666	
59	Output IF	13Ω	13.5Ω	20E54	16-6667	

DIAL LIGHT

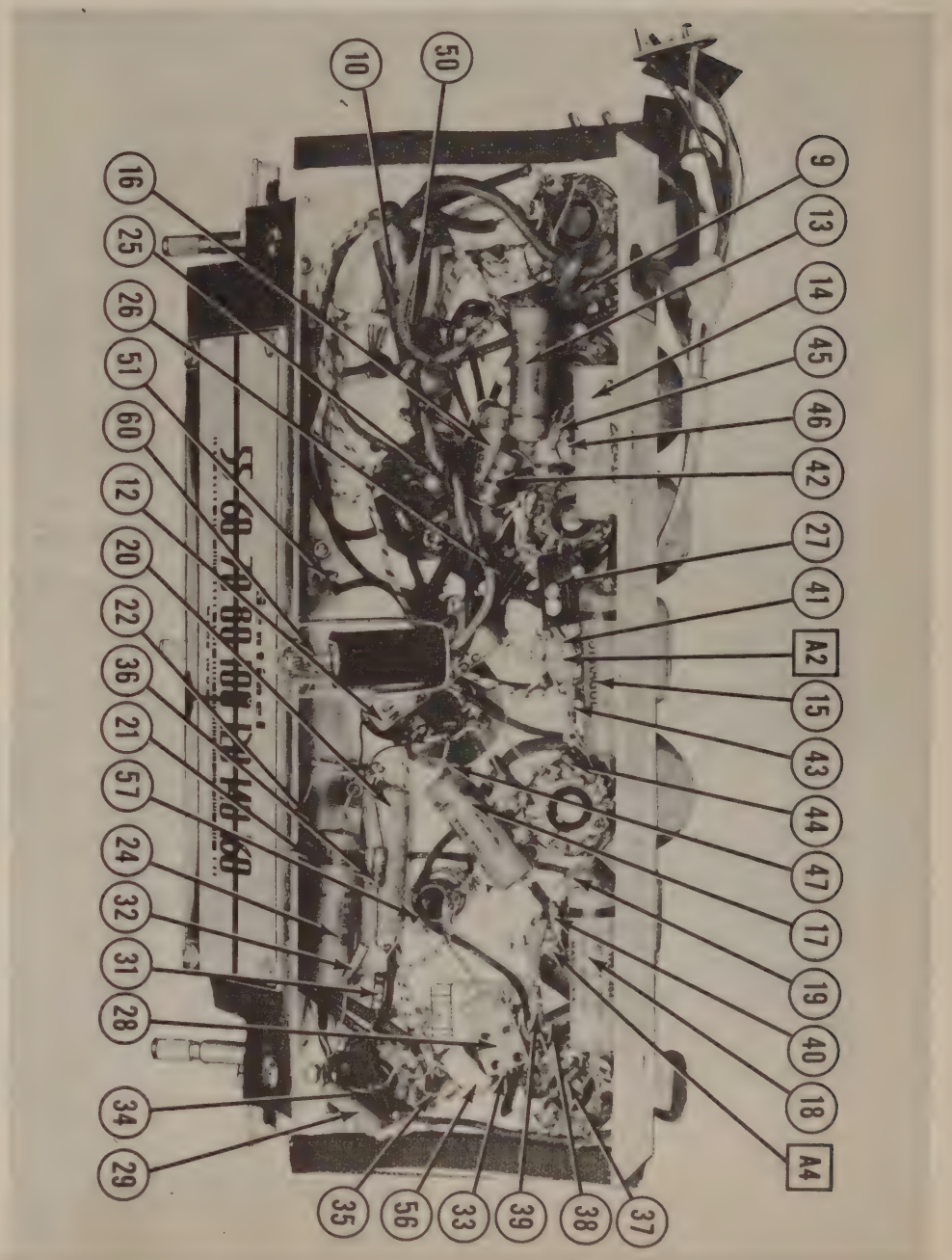
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SENTINEL PART No.		INSTALLATION NOTES
60	Bayonet	6-8	.25	Blue	40E2		Type 44

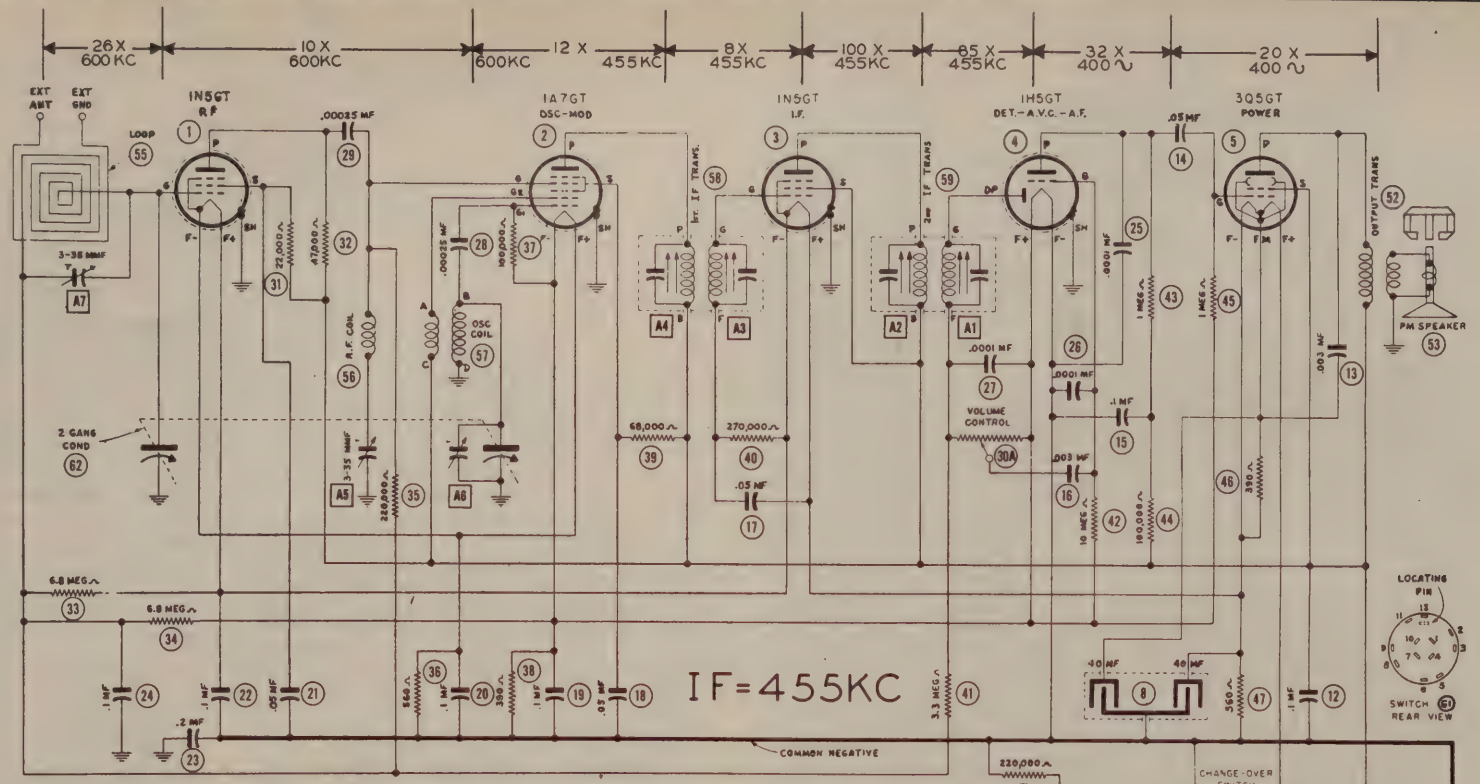
MISCELLANEOUS

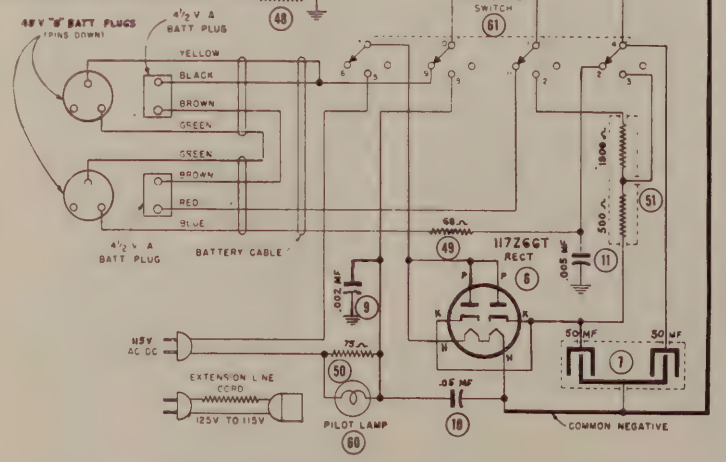
ITEM No.	PART NAME	SENTINEL PART No.	NOTES
61	Switch	29E5	Power Changeover
62A	Tuning Cap.	24E2 or	2 Gang Var. Cap. 2 Hole Mtg.
B	" "	24E18	" " " " 3 " "
A5	Trimmer Cap.	24E3	Wave Trap Adj. 3-35 MMF
A7	" "	24E3	Ant. Loop Adj. 3-35 MMF
	"A" Battery	38A	or equivalent
	"B" "	3870	" "
	Cabinet	7E43-1	
	Dial Plate Assby	20E78	Dial Back Plate
	Dial Crystal	9E4	Acetate
	Dial Escutcheon	48E1	Plastic
	Dial Scale	36E15	
	Dial Pointer	35E10	
	Knob	37E21-1	
	"	37E21-3	"AC-DC-Off-Batt"



CHASSIS—BOTTOM VIEW







NOTE: VOLT. & RES. READINGS TAKEN WITH CHANGE OVER SWITCH IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1N5GT	0V	4.4V.AC	67V.DC	97V. DC	+.05V. DC	+.05V. DC	2.8V.AC	0 V	.05V. DC
2	1A7GT	0V	2.8V.AC	100V.DC	45V. DC	0 V	100V. DC	1.37V.AC	0 V	.05V. DC
3	1N5GT	0V	5.8V.AC	100V. DC	100V. DC	95V.DC	0 V	4.4V.AC	0 V	.6V. DC
4	1H5 GT	0V	0V	45V. DC	+.05V. DC	+.07V. DC	0 V	1.37V.AC	0 V	0 V
5	3Q5 GT	0V	8.4V.AC	95V. DC	100V. DC	+.05V. DC	0 V	5.8V.AC	7.2 V.AC	
6	117Z6GT	0V	0 V	117V.AC	132V. DC	117V. AC	117V. AC	117V.AC	132V. DC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1N5GT	0 Ω	*	49K Ω	24K Ω	1.8MEG	2 MEG	*	INF	1.8MEG
2	1A7GT	0 Ω	*	2.3K Ω	70K Ω	100K Ω	2.3K Ω	*	0 Ω	2 MEG
3	1N5GT	0 Ω	*	2.3MEG	2.3K Ω	100K Ω	0 Ω	*	INF	270K Ω
4	1H5GT	0 Ω	*	1.1MEG	1.8MEG	78K Ω	10MEG	*	INF	10 MEG
5	3Q5GT	0 Ω	*	2.3K Ω	23K Ω	1MEG	INF	*	*	
6	117Z6GT	INF	0 Ω	220 Ω	2.3K Ω	220 Ω	220	220 Ω	2.3K Ω	

* DO NOT USE OHMMETER TO CHECK FILAMENT RESISTANCE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE **466-27**

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is grounded.

1-DC Voltage measurements are at 20,000 ohms per volt; AC voltages measured at 1000 ohms per volt.
2-Socket connections are shown as bottom views.
3-Measured values are from socket pin to common negative.
4-Line voltage maintained at 117 volts for voltage readings.
5-Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6-Volume control at maximum, no signal applied for voltage measurements.

SENTINEL
MODEL 289-T

SENTINEL
MODEL 289-T

SENTINEL MODEL 289-T

TRADE NAME	Sentinel Model 289-T
MANUFACTURER	Sentinel Radio Corp., 2020 Ridge Ave., Evanston, Illinois
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 1A5GT Power Output.
POWER SUPPLY	1.5 Volt "A" Battery & 90 Volt "B" Battery in Pack Form-Sentinel Bat. #AB-280 or equiv
TUNING RANGE—BROADCAST	540-1730 KC RATING 210MA @ 1.5VDC & 9MA @ 90VDC

ALIGNMENT INSTRUCTIONS

Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.02 MFD.	High side to grid cap. of 1A7. Low side to chassis.	455KC	Any point where no interfering signal is received.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF.	High side to ext. ant. (blue) lead. Low side to ext. ground (black) lead.	1730KC	Variable fully open.	"	A5	" " " "
"	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SENTINEL PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	1A5GT	1A5GT	6X	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SENTINEL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5	10	100	25E9	TC42	M-10-150	UT-121	PRS150-12	BR1215	Pwr. Supp. Bypass
6	.001	200	25E204	TP404	S-6-001	TC-21	484-001	DT6D1	1A5 Plate Bypass
7	.01	120	25E151	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
8	.01	120	25E151	TP421	S-4-01	TC-11	484-01	DT4S1	" "
9	.5	200	25E224	TP431	S-4-5	TC-5	484-.5	DT4P5	RF Bypass Pwr. Supp.
10	.05	200	25E216	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
11	.5	200	25E224	TP431	S-4-5	TC-5	484-.5	DT4P5	Filament Bypass
12	.05	200	25E216	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	100	500	23E3	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
14	100	500	23E3	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	IF Bypass Vol. Cont.
15	250	500	23E42	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SENTINEL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	1	28E2	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 16A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

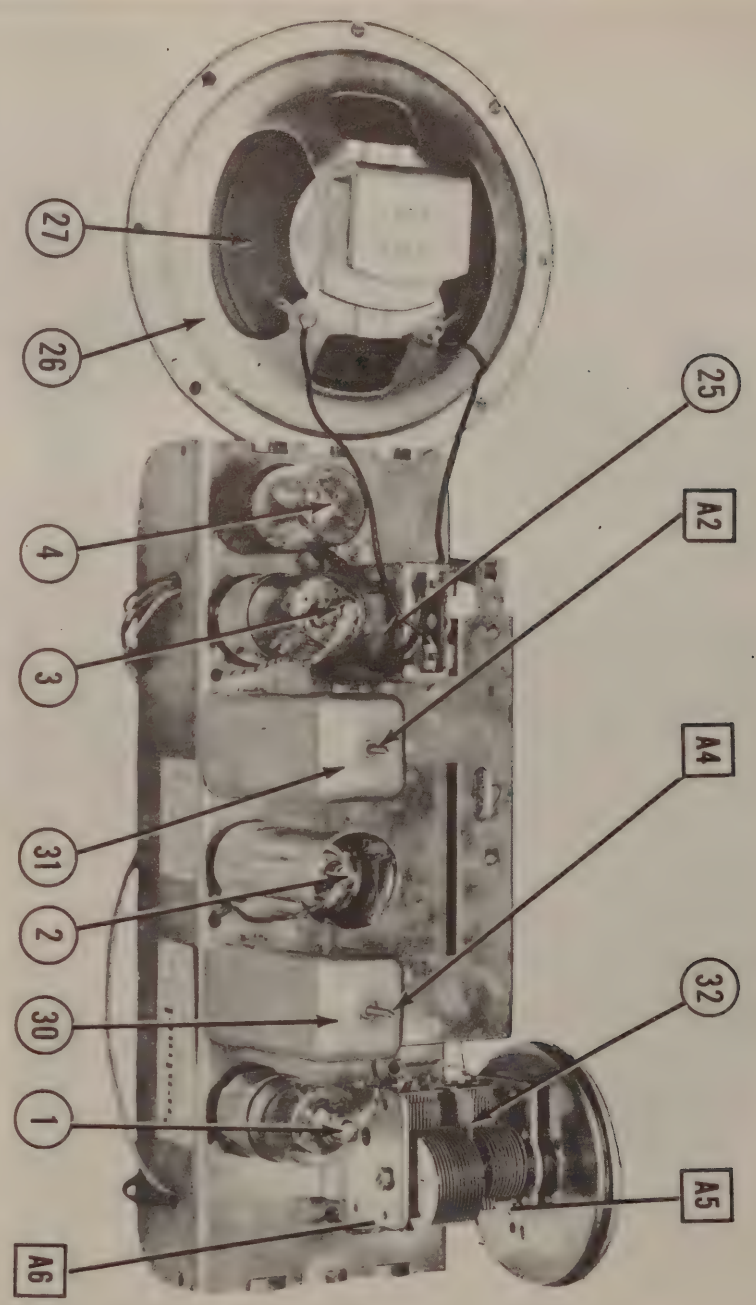
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SENTINEL PART No.	IRC PART No.	
17	220KΩ	½	27E224	BTS-220K	Red-Red-Yl. Osc. Grid
18	22KΩ	½	27E223	BTS-22K	Red-Red-Or. Osc. Screen Dropping
19	3.3 Meg.	½	27E335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
20	4.7 Meg.	½	27E475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
21	10 Meg.	½	27E106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
22	1 Meg.	½	27E105	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
23	3.3 Meg.	½	27E335	BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
24	560Ω	½	27E561	BTS-560	Grn.-Blue-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SENTINEL PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
25	25000Ω	3.85Ω	1500Ω	.6Ω	22E4	A-3857	T-22S48		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

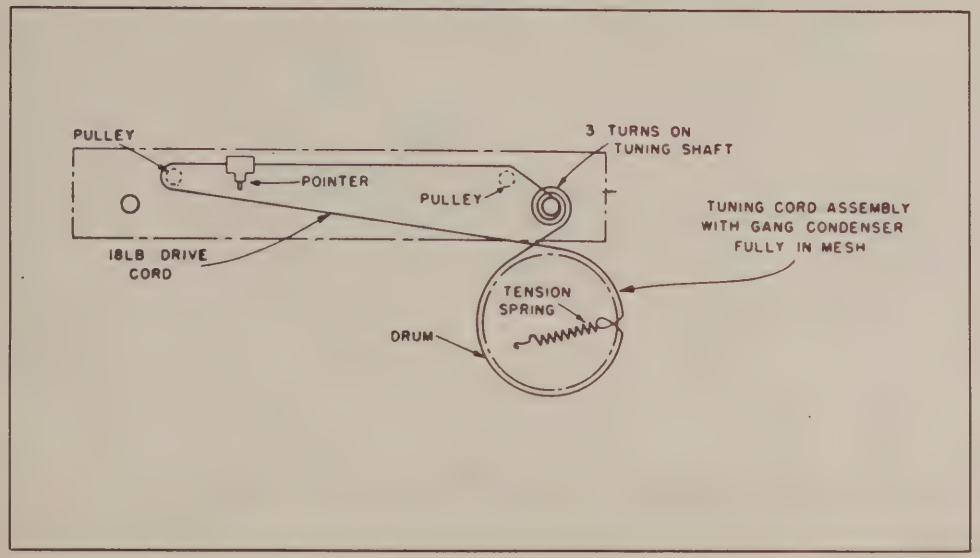
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SENTINEL PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-108		
26	PM	3.85Ω	1E15	Mod. P6-X		
	CONE DIA.	VC DIA.				
27	6¼"	½"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

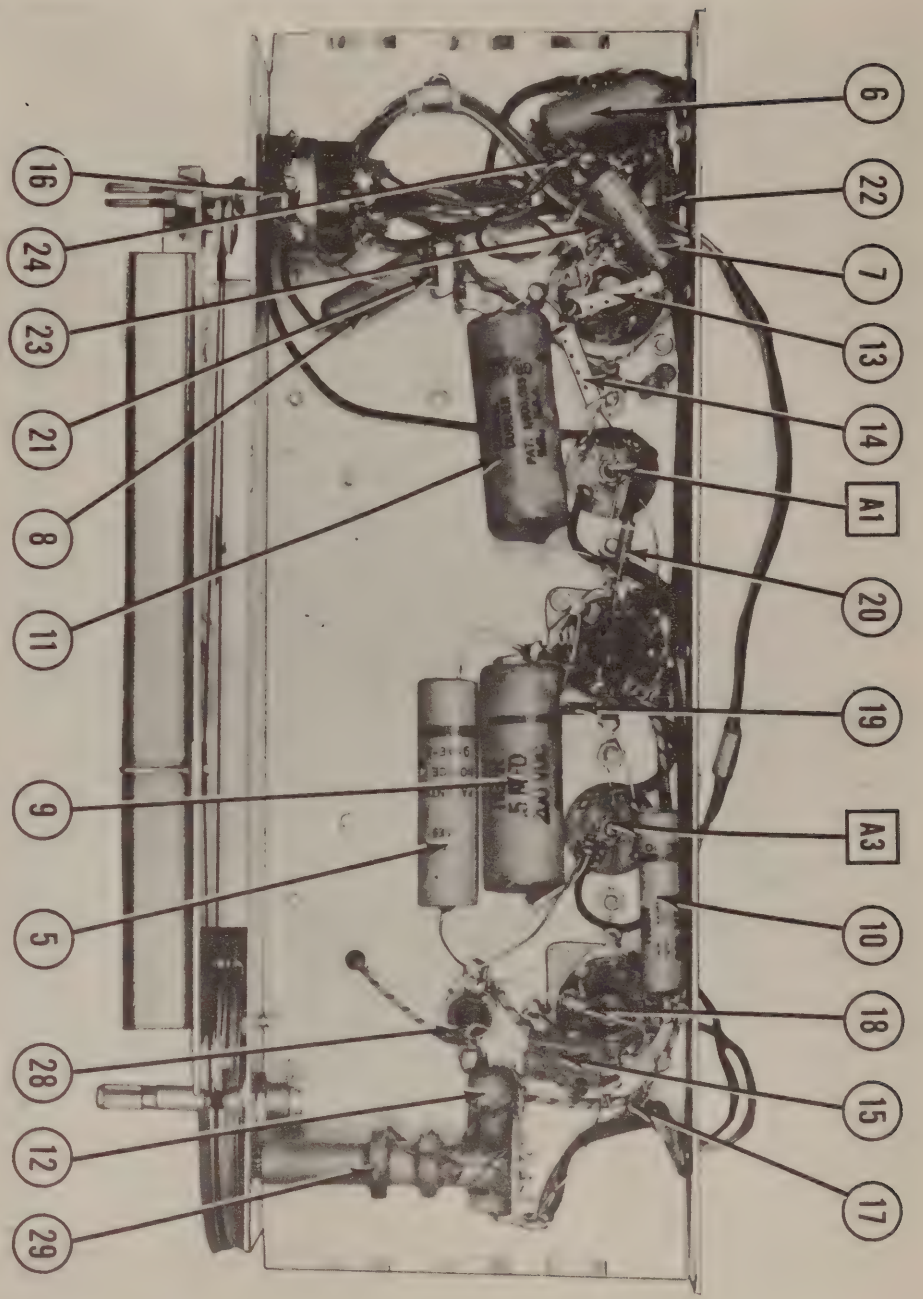
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	SENTINEL PART No.	MEISSNER PART No.	
28	Ant. Coil	19Ω	2Ω	20E32	14-1026	
29	Osc. Coil	1.5Ω	5.5Ω	20E77	14-1040	
30	Input IF	11Ω	11Ω	20E21	16-5740	
31	Output IF	10Ω	10Ω	20E35	16-5742	

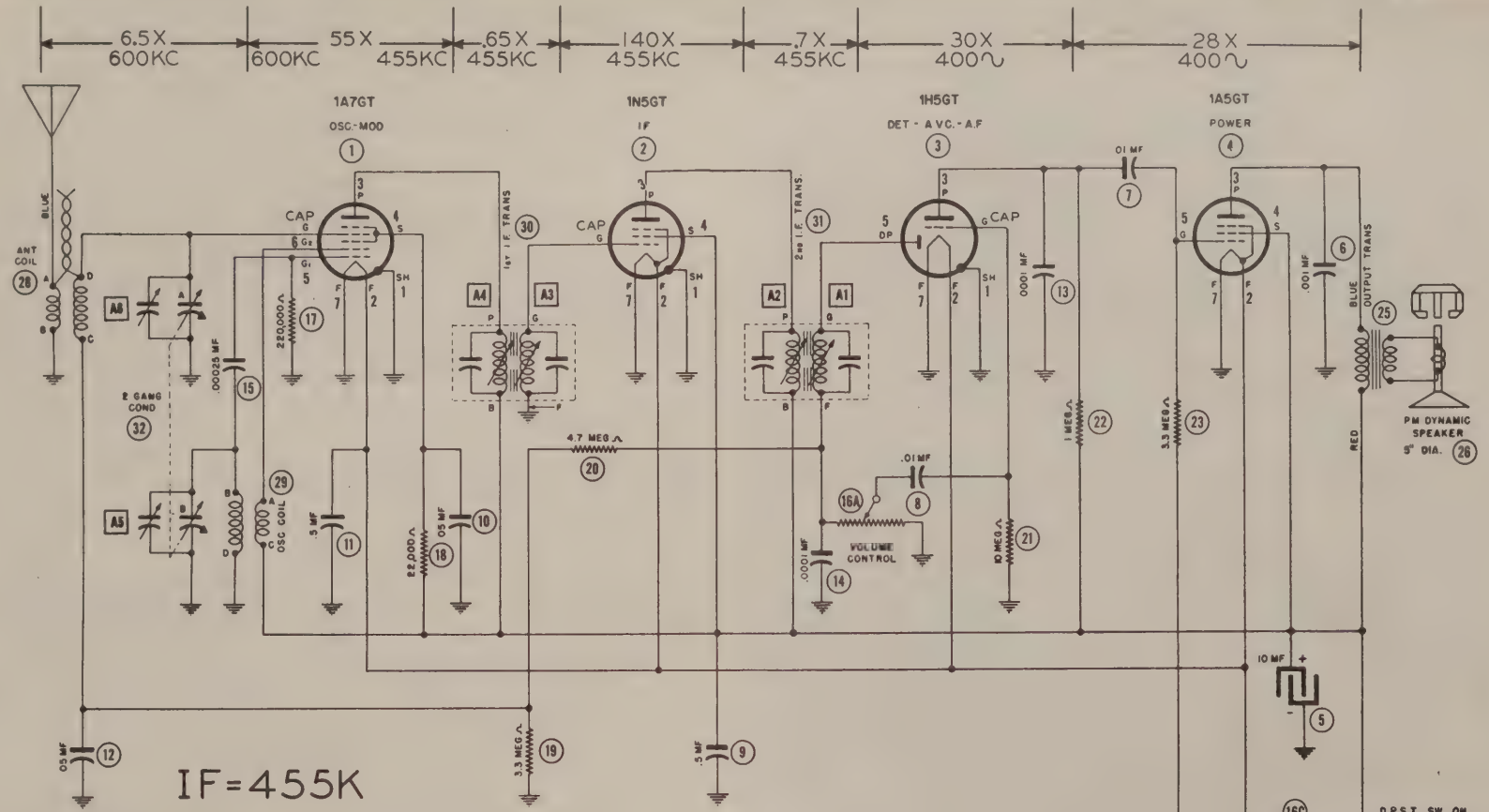
MISCELLANEOUS

ITEM No.	PART NAME	SENTINEL PART No.	NOTES
32A	Tuning Cap.	24E4	2 Gang Variable Cap. 3 Hole Mtg.
32B	" "	24E19	" " " " " "
	Cabinet	7E50	Wood
	Dial Scale	36E11	
	Dial Pointer	35E9	
	Dial Indicator	36E14	On-Off
	Knob	37E25-1	
	Plug	17E3-4	4 Prong Battery Cable
	Throw Arm	46E1-1	On-Off Indicator
	Drive Shaft	68E2	



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V	1.6V. DC	92V. DC	61V. DC	-.5V. DC	92V.DC	0V	0V	0V
2	1N5GT	0V	1.6V. DC	92V. DC	92V.DC	0V	0V	0V	0V	0V
3	1H5GT	0V	1.6V. DC	55V.DC	0V	-1V. DC	0V	0V	0V	0V
4	1A5GT	0V	1.6V. DC	87V. DC	92V. DC	-15V.DC	- 6V. DC	0V	0V	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0Ω	*	400KΩ	420KΩ	240KΩ	400KΩ	0Ω	INF	1.9 MEG
2	1N5GT	0Ω	*	400 KΩ	400KΩ	INF	1.9 MEG	0Ω	INF	10.5 Ω
3	1H5GT	0Ω	*	1.9 MEG	INF	400KΩ	INF	0Ω	INF	10 MEG
4	1A5GT	INF	*	400KΩ	400KΩ	3 MEG	600 Ω	0Ω	INF	

NOTE: DO NOT USE OHMMETER TO CHECK FILAMENTS

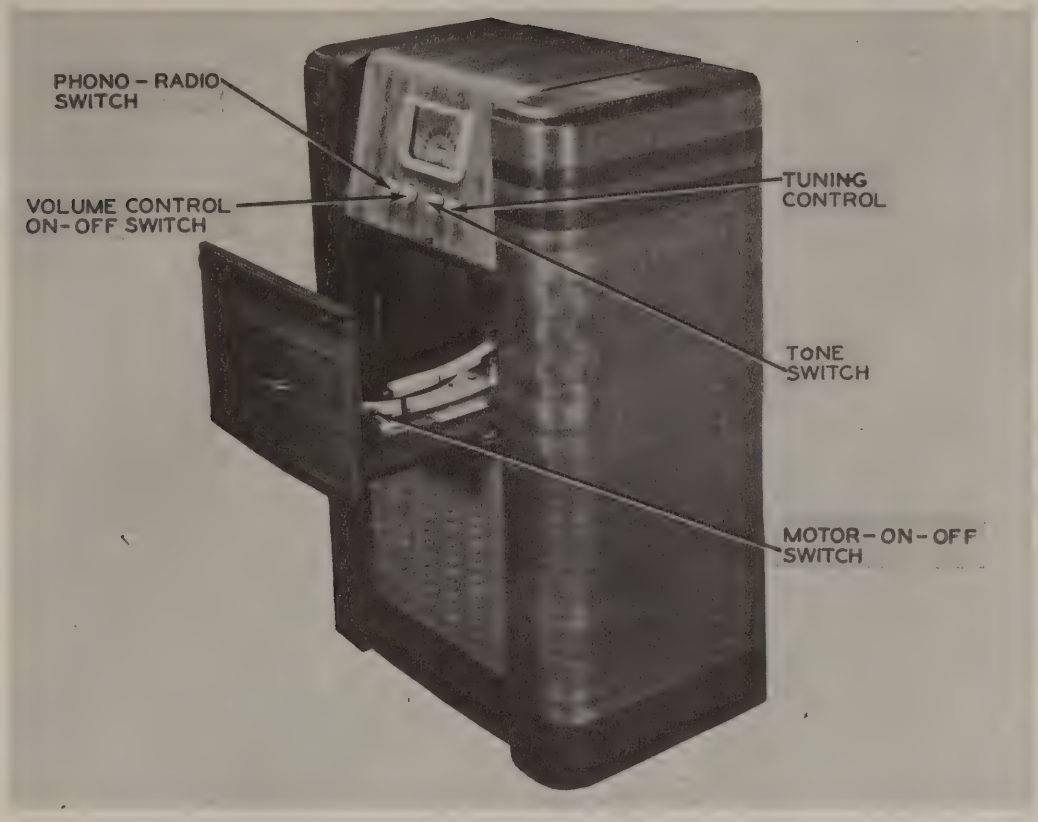
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

466-28

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is grounded for these measurements.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage



SILVERTONE
MODEL 6100

SILVERTONE
MODEL 6100

SILVERTONE MODEL 6100

TRADE NAME	Silvertone Model 6100 (Ch. No. 101.660-1A)
MANUFACTURER	Sears, Roebuck and Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated Combination Automatic Phono. - Superheterodyne Receiver, Self Contained Loop Antenna.
TUBES (FIVE)	Types, 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6K6GT/G Power Output, 6X5GT/G Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	535-1620KC RATING .390 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 (grid) of 6SA7. Low side to chassis.	455KC	Low freq. end. Variable fully closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
50 MMF.	High side to ant. clip. Low side to chassis.	1620KC	High freq.end. Variable fully open.	"	A5	" " " "
"	"	1410KC	Tune for maximum output.	"	A6	" " " "
"	"	600KC	"	"	A7	Rock variable and adjust for maximum output. Recheck A5 at 1620KC and A6 at 1410KC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SA7GT	6SA7GT	8AD	
2	IF Amp.	6SK7GT	6SK7GT	8N	
3	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
4	Power Output	6K6GT/G	6K6GT/G	7S	
5	Rectifier	6X5GT/G	6X5GT/G	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	16	375	R45421	2S569	DY-2x20-400/20-25*	TU-1616	PRV450-16-16	EZ16D35S	Filter - Yellow
B	16	300							" - Red
C	10	25		TC22		TA-10	PRS25-10	BR102A	Cath. Bypass - Blue
7	.01	600		TP410	S-6-01	TC-11	684-01	DT6S1	Tone Compensation
8	.008	600		TP450	S-6-01	TC-11	684-01	DT6S1	6K6 Plate Bypass
9	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
11	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	IF Cath. Bypass
12	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
13	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Conv. Screen Bypass
14	.1	200		TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
15	100	500		MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
16	230	500		MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Osc. Grid Capacitor
17	50	500		MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Ant. Coupling

*Use with mounting clip type MC-8

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	2 Meg.	1	R45414	MR55	D13-139	M-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

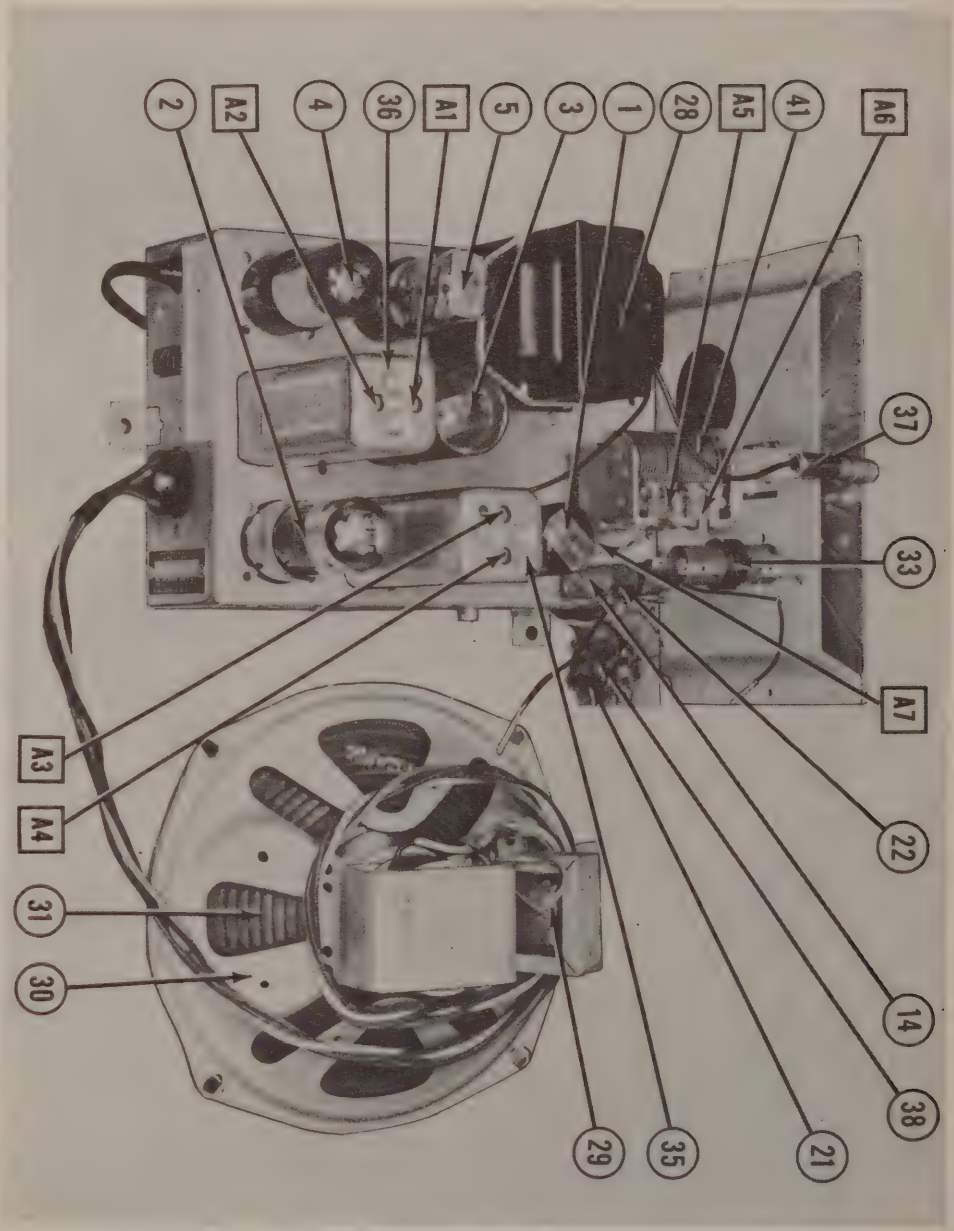
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
19	22KΩ	1/3		BTS-22K	Red-Red-Or. Osc. Grid
20	15KΩ	2		BT-2-15K	Br.-Grn.-Or. Converter Screen Dropping
21	2.2 Meg.	1/3		BTS-2.2 Meg.	Red-Red-Grn. Series Phono
22	2.2 Meg.	1/3		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
23	470KΩ	1/3		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
24	10 Meg.	1/3		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
25	470KΩ	1/3		BTS-470K	Yl.-Vi.-Yl. Output Grid
26	390Ω	1		BW-1-390	Or.-White-Br. Output Cathode
27	68Ω	1/3		BW-½-68	Blue-Gray-Blk. IF Cathode

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
28	117V AC @ .390A	600V CT @ .051A	6.5VAC @ 2.0A		R45417	P-6312†	T-22R01†	†Use universal mounting brackets supplied with this unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
29A	6300Ω	3.3Ω	330Ω	.85Ω	R45476	A-3823	T-22S47		60 Cycle Operation
B					R45418				25 " "

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.		
	FIELD RES	VC IMP.		ST-435		
30	1000Ω	3.3Ω	R57103	Mod. F8-RS		Field Coil Original Part No. R45477
	CONE DIA.	VC DIA.				
31	7-3/8"	3/4"	R45475			

R F COILS

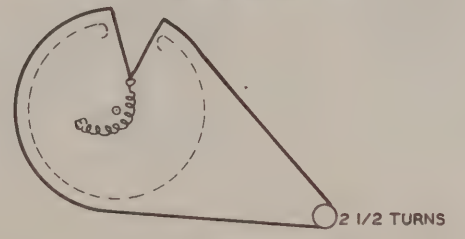
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
32	Loop Ant.	0Ω				
33	Ant. Load Coil		5.2Ω	R45439		
34	Osc. Coil		6Ω	R45453		
35	Input IF	14.5Ω	14.5Ω	R57276	16-6658	
36	Output IF	15.5Ω		R57277		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
37	Bayonet	6-8	0.25	Blue	R14914		Type 44

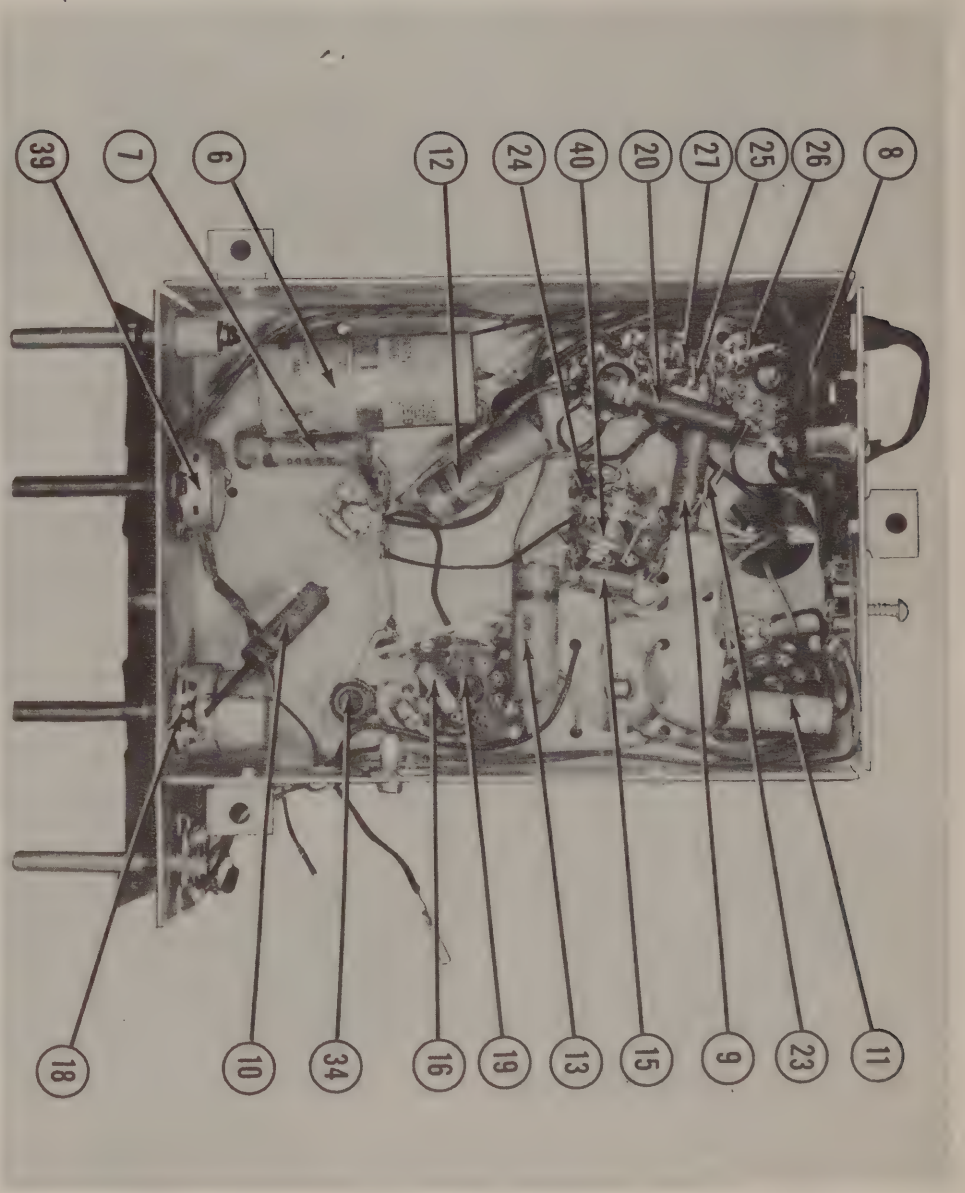
MISCELLANEOUS

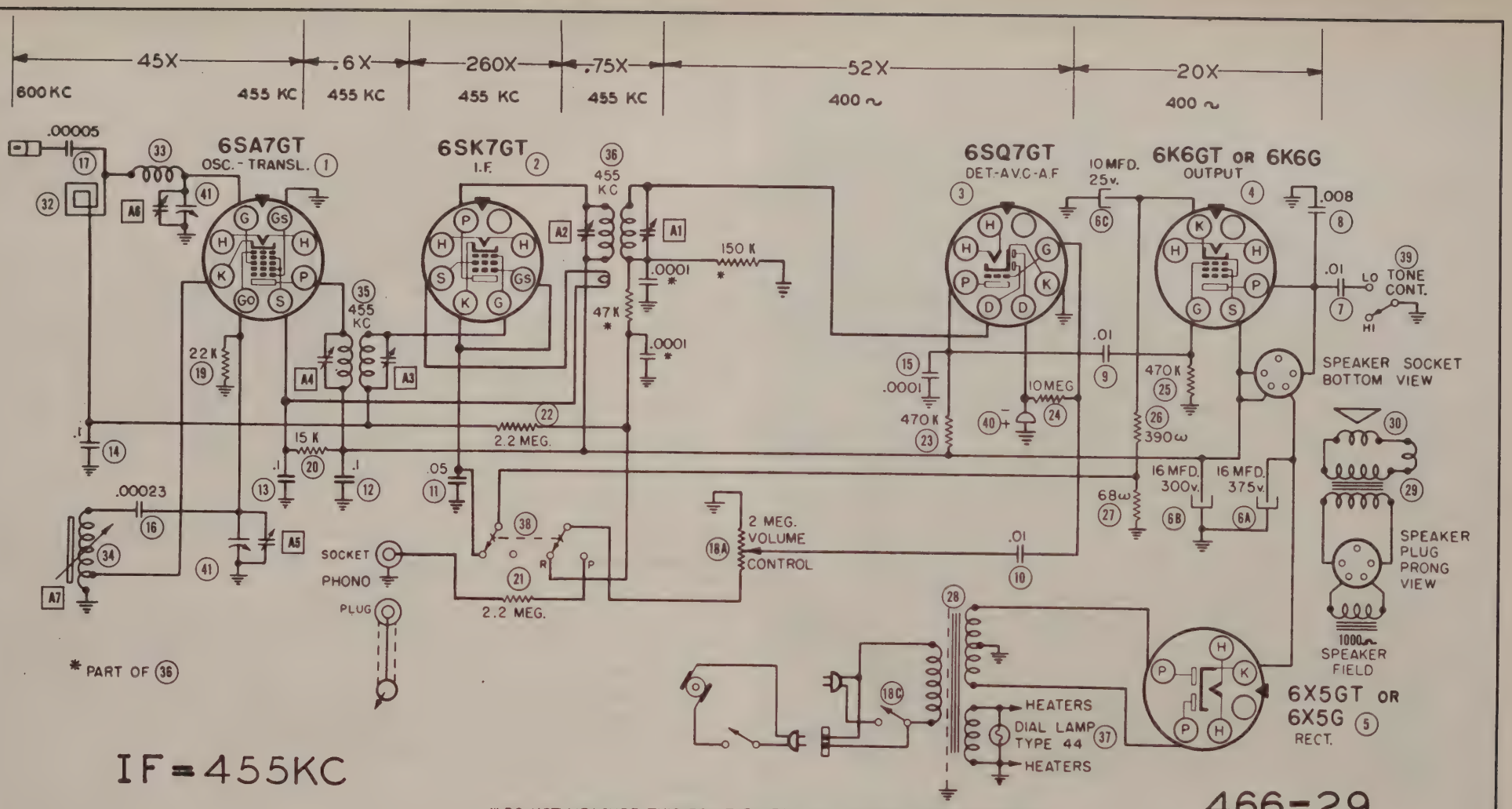
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
38	Switch	R57286	Radio-Phono
39	Tone Switch	R45438	
40	Bias Cell	R17915	
41	Tuning Cap.	R45409	2 Gang Variable Cap.
	Knob	R49936	On-Off & Volume
	"	R49935	Phono-Radio
	"	R49937	Tone
	"	R49938	Tuning
	Dial Scale	R57175	
	Dial Pointer	R57176	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7GT	0V.	6.5V.AC	275V.DC	95V. DC	0V.	0V.	0V.	0V.
2	6SK7GT	0V.	6.5V.AC	3V.DC	0V.	3V.DC	95V.DC	0V.	275V.DC
3	6SQ7GT	0V.	-.55V.DC	0V.	*	-.15V.DC	113V.DC	0V.	6.5V.AC
4	6K6GT/G	0V.	0V.	250V.DC	275V.DC	0V.	3V. DC	6.5V.AC	16V.DC
5	6X5GT/G	0V.	0V.	300V.AC	275V.DC	300V.AC	95V.DC	6.5V.AC	335V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7GT	0Ω	.25 Ω	130 KΩ	145 KΩ	21 KΩ	.5 Ω	0 Ω	3 MEG
2	6SK7GT	0Ω	.25 Ω	64 Ω	3 MEG	64 Ω	145 KΩ	0 Ω	130 KΩ
3	6SQ7GT	0Ω	10 MEG	0 Ω	*	145 KΩ	600 KΩ	0 Ω	.25 Ω
4	6K6GT/G	0Ω	0Ω	130 KΩ	130 KΩ	380 KΩ	64 Ω	.25 Ω	400 Ω
5	6X5GT/G	0Ω	0Ω	270 Ω	130 KΩ	250 Ω	145 KΩ	.25 Ω	130 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SKYROVER
MODELS N5-R-D-250, N5-R-D-251

SKYROVER MODELS N5-RD-250

TRADE NAME	Skyrover Models N5-RD-250 (9022-N), N5-RD-251 (9022-H)
SUPPLIER	Butler Bros., Randolph & Canal Streets, Chicago, Ill.
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 1st Det.-Osc., 12SF7 IF-2nd-Det.-AVC, 12SK7 1st Audio, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC
TUNING RANGE—BROADCAST	535-1600KC RATING .235 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Turn tuning knob completely clockwise and check slug adjustment as shown in slug tuner assembly drawing. Solder approximately 8 inches of insulated wire to any B- terminal and reinstall chassis and loop in cabinet allowing B- lead to extend from under chassis at the back. To check pointer turn tuning knob clockwise as far as it will go. Pointer should be at 1600KC. If it is set incorrectly, reposition pointer. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to ungrounded terminal of A6. Low side to B-.	455KC	Any point of no interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Then repeat adjustment. If isolation transformer is not used, reduce dummy to .001 MFD to reduce excessive hum modulation.
300 MMF Mica.	High side to ext. ant. clip on loop. Low side to B-.	1600KC	1600KC	"	A5	Adjust for maximum output.
"	"	1600KC	Tune for maximum output.	"	A6,A7.	" " " "
"	"	1400KC	"	"	44,45	Adjust slugs for maximum output. After adjusting, apply speaker cement at top of each stem to prevent movement.
"	"	1600KC	"	"	A6,A7.	Recheck adjustment for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: SKYROVER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	1st Det.-Osc.	12SA7	12SA7	8R	
3	IF 2nd Det.-AVC	12SF7	12SF7	7AZ	
4	1st Audio	12SK7	12SK7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SKYROVER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	500256	FP354*	DY-40+20-150	EL-24	AF-88D	UP4215*	■ Filter
B	20	150							▲
8	.2	400	502158	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
9	.05	400	502157	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Filter
10	.01	400	502151	TP421	S-4-01	TC-11	484-.01	DT4S1	Pwr. Amp. Plate
11	.004	400	502156	TP407	S-6-004	TC-24	484-.004	DT6D4	Audio Coupling
12	.02	400	502152	TP423	S-4-02	TC-12	484-.02	DT4S2	Feedback
13	.05	200	502153	TP426	S-4-05	TC-15	484-.05	DT4S5	Audio Plate Decoup.
14	.002	400	502543	TP405	S-6-002	TC-22	484-.002	DT6D2	Audio Coupling
15	.0008	400	502470	MC451	M0.3-38	TC-21	1468-.00075	1W5T8	Tone Control
16	.1	200	502155	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
17	110	500	502160	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	Audio Plate Bypass
18	110	500	502160	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	RF Filter
19	50	500	502159	MC225	M0.5-45	1FM-45	1468-.00005	5W5C5	Osc. Grid Cond.
20	260	500	502271	MC240	M0.5-325	1FM-325	1468-.00025	5W5T25	RF Coupling
21	1000	500	502165	MCB455	MW.5-21	MS-21	1467-.001	2R5D1	AVC Filter

*Parallel two sections for desired capacity.

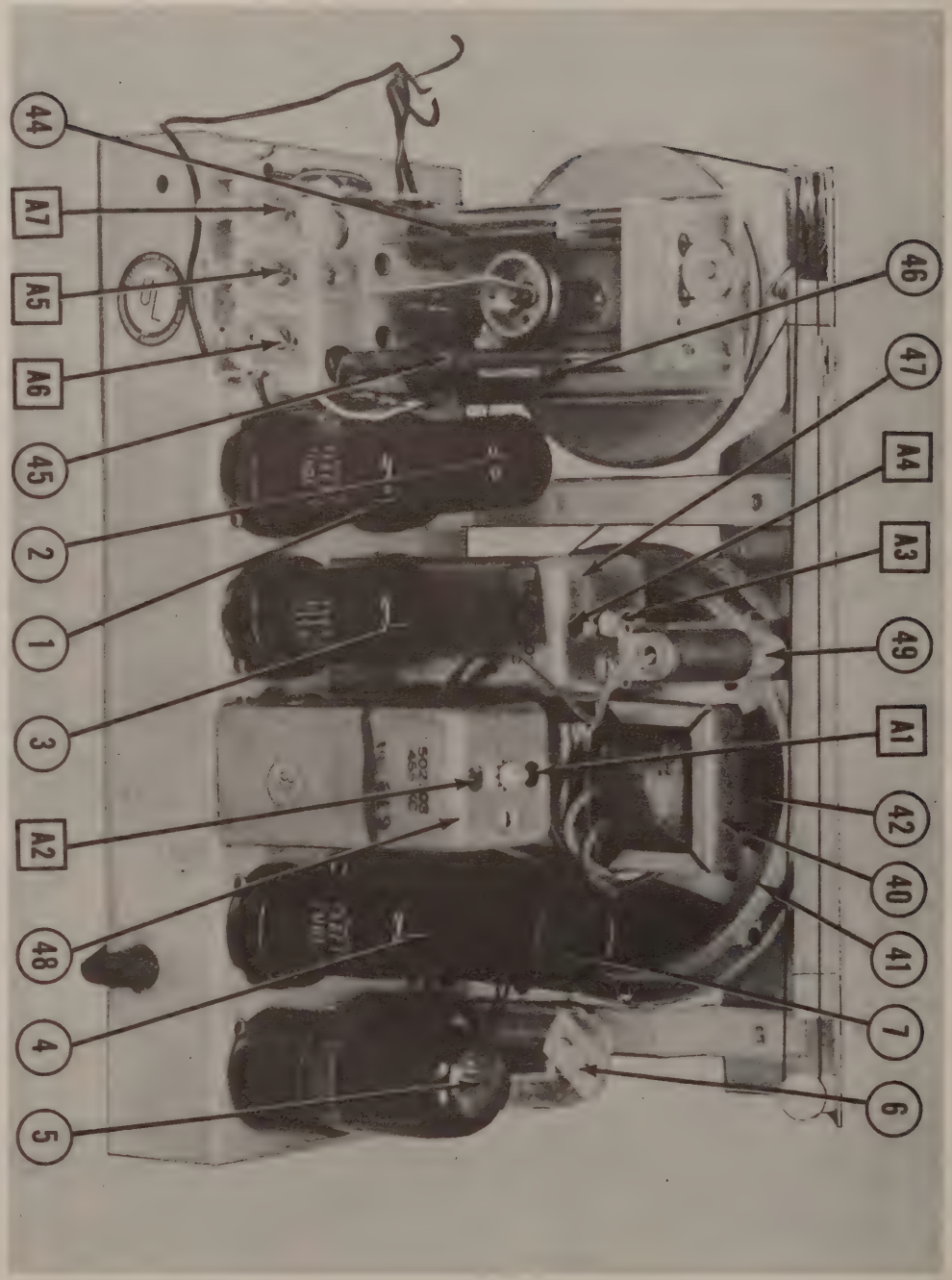
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SKYROVER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1	502145	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.		E	KSS-3	Attach to 22A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SKYROVER PART No.	IRC PART No.	IDENTIFICATION CODES
23	390Ω	½	502140	BW-½-390Ω	Or.-Wh.-Br. RF Cathode
24	4700Ω	½	502291	BTS-4700Ω	Yl.-Vi.-Red Plate Load
25	470KΩ	½	502134	BTS-470K	Yl.-Vi.-Yl. AVC Network
26	22KΩ	½	502130	BTS-22K	Red-Red-Or. Osc. Grid
27	47Ω	½	502264	BW-½-47Ω	Yl.-Vi.-Blk. IF Cathode
28	3.3 Meg.	½	502269	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
29	47KΩ	½	502131	BTS-47K	Yl.-Vi.-Or. Diode Load
30	10 Meg.	½	502136	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
31	2200Ω	½	502128	BTS-2200Ω	Red-Red-Red 1st AF Cathode
32	220KΩ	½	502133	BTS-220K	Red-Red-Yl. Plate Load
33	220KΩ	½	502133	BTS-220K	Red-Red-Yl. Decoupling Filter
34	2.2 Meg.	½	502135	BTS-2.2 Meg	Red-Red-Grn. Screen Dropping
35	470KΩ	½	502134	BTS-470K	Yl.-Vi.-Yl. Output Grid
36	130Ω	½	502138	BW-½-130Ω	Br.-Or.-Br. Output Cathode
37	1500Ω	1	502469	BTA-1500Ω	Br.-Grn.-Red Filter
38	220KΩ	½	502133	BTS-220K	Red-Red-Yl. Line Isolating
39	33Ω	2	502574	BW-½-33Ω	Or.-Or.-Blk. Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SKYROVER PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
40A	2300Ω	3.9Ω	230Ω	.55Ω	502904	A-3876*			Used with A-502998 speaker
B					502213				" " R-502998 "
C					504244				" " W-502998 "

*Bend mounting tabs down, file out slots and mount on original bracket. Additional filtering may be required.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SKYROVER PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.		P5-X		
41	PM	3.92Ω	R-502998	ST-105*		*Fabricate new mounting bracket.
			A-502998	"		
			W-502998	"		
	CONE DIA.	VC DIA.				
42	5"	½"	502214	Voice Coil Assembly		used with R-502998 Speaker
			502903	" "		" " A-502998 "
			504245	" "		" " W-502998 "

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	SKYROVER PART No.	MEISSNER PART No.	
43	Ant. Loop	0Ω		502246		
44	Ant. Coil	1Ω	7Ω	504210		See Note #1
45	RF "	6Ω		504214		" " "
46	Osc. "	5Ω	0Ω	504212		" " "
47	Input IF	20Ω	20Ω	502102	16-5712	
48	Output IF	19Ω	19Ω	502103	16-5714	

Note 1 - Items 44, 45 and 46 are ganged and slug tuned and are obtainable as a complete tuner assembly Part No. 504096.

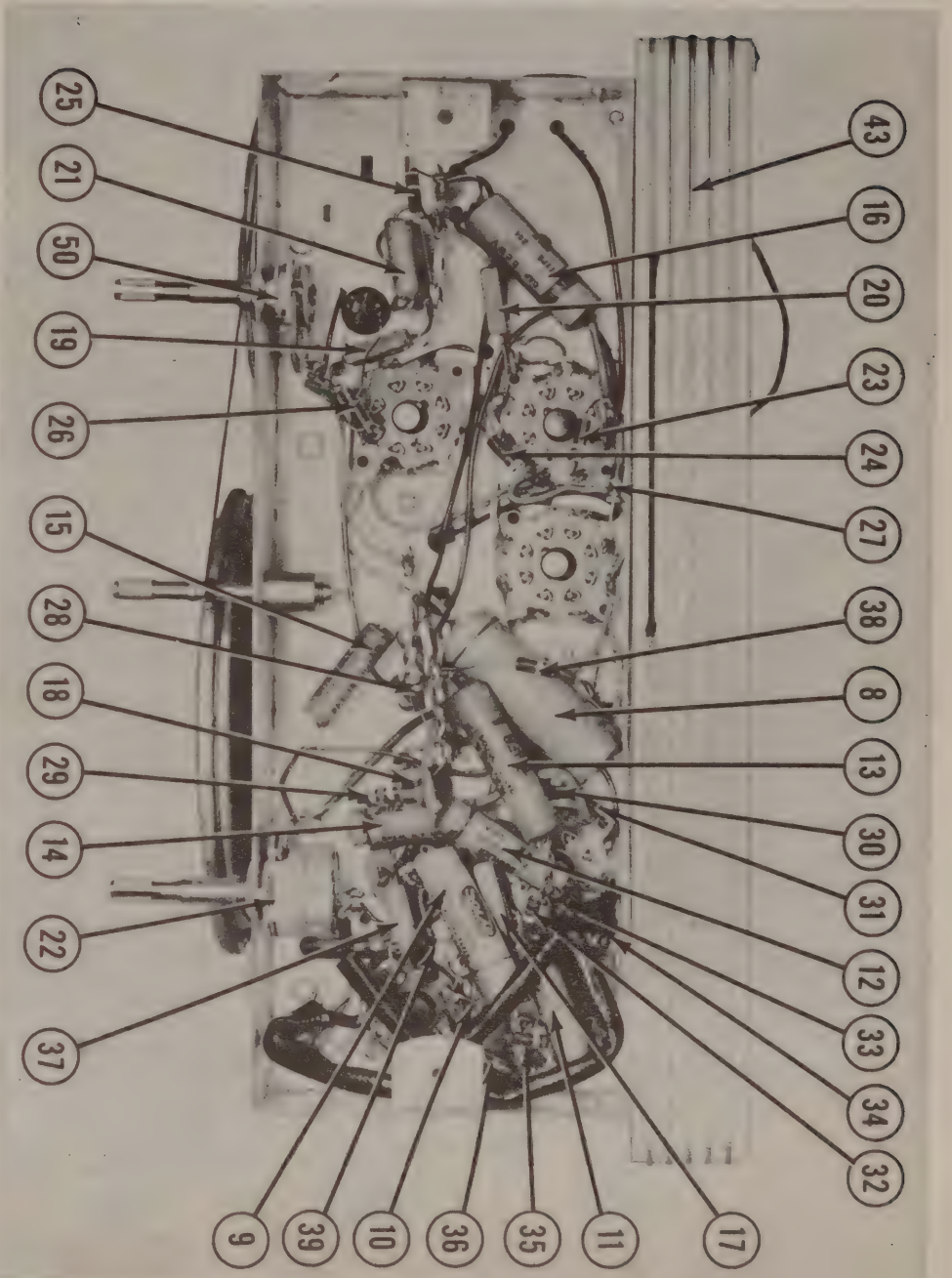
DIAL LIGHT

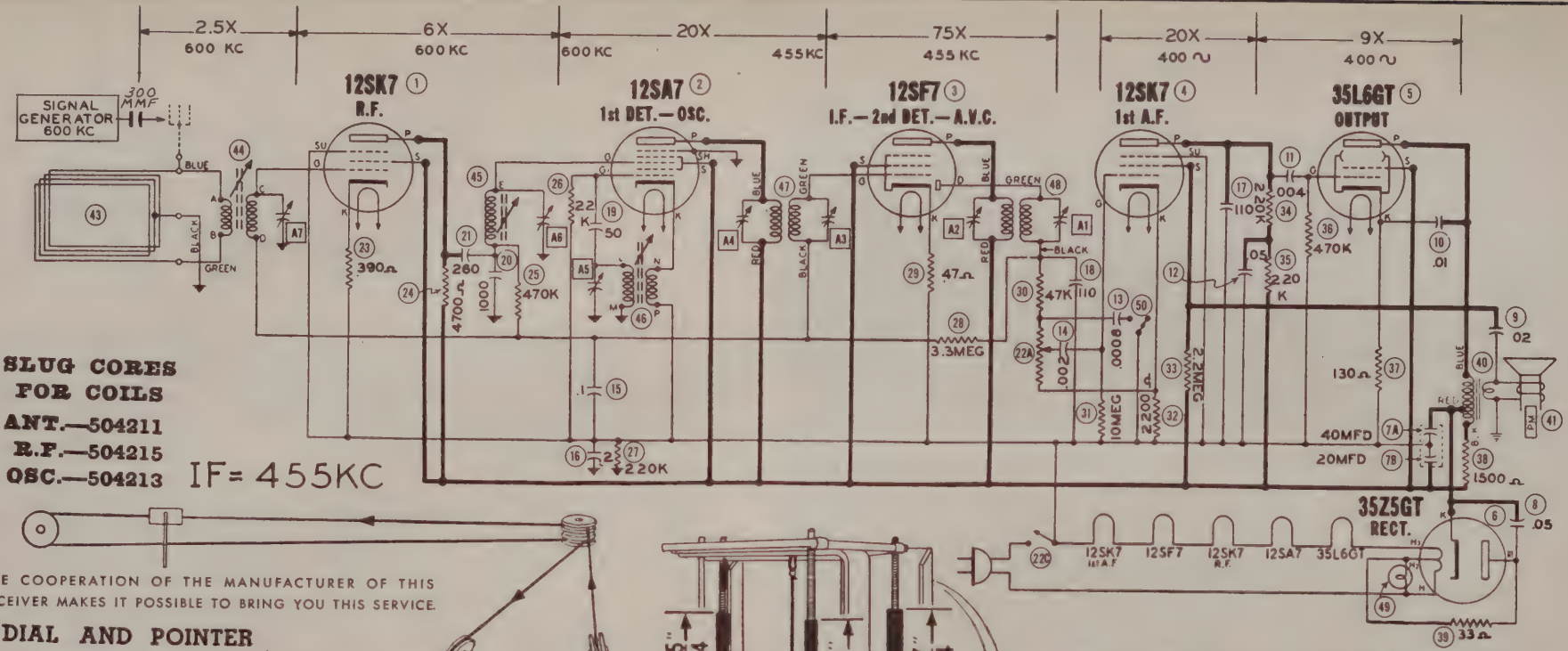
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SKYROVER PART No.		
49	Min. Bayonet	6-8	.15	Brown	502473		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	SKYROVER PART No.	NOTES
50	Tone Switch	500546	Single Pole Double Throw
A5	Osc. Trimmer		20 to 270 MMFD.
A6	RF Trimmer	504086	20 to 270 MMFD.
A7	Ant. Trimmer		10 to 160 MMFD.
	Cabinet	502556	Ivory (9022H)
	"	502557	Mahogany (9022N)
	Knob	502553	Ivory (9022H)
	"	502551	Mahogany (9022N)
	Dial Scale	504145	Glass
	" Pointer	502367	
	Cab. Back	502185	

CHASSIS—BOTTOM VIEW





SLUG CORES FOR COILS

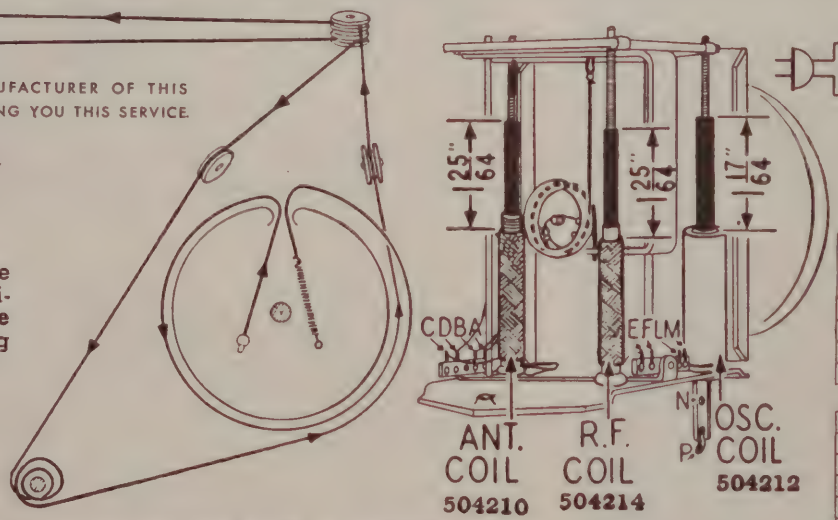
ANT.—504211
R.F.—504215
OSC.—504213

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE.

DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, turn the main drive drum to maximum **counter - clockwise** position and use following parts:

114955	Clip on end of cord
117057	Cord (55 inches)
119087	Ring for dial cord
161384	Tension Spring



RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	-.02V.DC	24.5V.AC	0V.	-.02V.DC	2.6V DC	76V. DC	37V.AC	58V.DC
2	12SA7	-.02V.DC	50V.AC	76V. DC	76V. DC	-.25V.DC	0V.	37V. AC	-1 V. DC
3	12SF7	-.02V. DC	-.02V. DC	.5V.DC	76 V. DC	0V.	76V. DC	11.5V.AC	24.5V.AC
4	12SK7	-.02V.DC	0V.	0V.	1.5V.DC	.27V.DC	7V. DC	11.5V.AC	35V.DC
5	35L6GT	-.02V.DC	50V.AC	112 V. DC	92V. DC	0V.	0V.	87V.AC	4.3V.DC
6	35Z5GT	0V.	117V.AC	113V.AC	117V. DC	112V.AC	0V.	87V.AC	117V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	198 KΩ	28Ω	0Ω	3.7MEG	375Ω	875 KΩ	41Ω	875KΩ
2	12SA7	198 KΩ	50Ω	875KΩ	875KΩ	24 KΩ	.5Ω	41Ω	4MEG
3	12SF7	198 KΩ	4MEG	44Ω	875 KΩ	470 KΩ	875KΩ	12.5Ω	28Ω
4	12SK7	198 KΩ	0Ω	0Ω	7.5MEG	1.8 KΩ	3.3MEG	12.5Ω	875KΩ
5	35L6GT	198 KΩ	50Ω	875 KΩ	875KΩ	450KΩ	450Ω	80Ω	122Ω
6	35Z5GT	INF	108Ω	105Ω	875KΩ	135Ω	0Ω	80Ω	875KΩ

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. The following precautions should be observed in making stage gain measurements on this set.

1 - Use the 600KC signal with 400-cycle modulation connected as shown. (Use nearby frequency if local station interferes.)

2 - For RF and IF measurements connect negative terminal of 3-volt battery to AVC lead and positive terminal to B-. IMPORTANT-Disconnect battery when measuring audio stage gains.

3 - Be sure receiver is carefully tuned to generator signal. (Use weak signal for sharp tuning.)

SERVICE HINT - AUDIO OSCILLATION

466-31

The audio system of this receiver utilizes a two stage type of inverse feed-back arrangement and, should it ever be necessary to replace the speaker or output transformer, it is important to maintain a definite phase relationship in the feed-back circuit. If the connections to the output transformer are reversed or if the feedback connection is made to the wrong side of the output transformer secondary, the system will become regenerative instead of degenerative. Under those conditions audio oscillation may result. If that occurs, oscillation may be prevented by reversing the connections to the secondary of the output transformer.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

STRATOVOX
MODEL 579-1-58A

STRATOVOX
MODEL 579-1-58A

STRATOVOX MODEL 579-1-58A

TRADE NAME	Stratovox Model 579-1-58A
SUPPLIER	Grossman Music Co., 210 Prospect St., Cleveland Ohio.
TYPE SET	AC - DC Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7GT Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .265 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Set volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin 6 of 12SA7. Low side of B-.	455KC	High freq. end of dial. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce excessive hum modulation.
	Loop	1620KC	"	"	A5	Connect output of signal generator to two turns of wire and radiate signal into receiver loop. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6,A7.	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: STRATOVOX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7GT	12SA7GT	8R	
3	If Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STRATO-VOX PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150		FP306*	DY-40+20-150	EL-24	AF88D	UP4CJ59*	■ Filter
B	20	150							▲ "
8	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
9	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	35L6 Plate Bypass
10	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
11	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	" "
12	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Line Isolating
13	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	220	500		MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Audio Plate Bypass
15	47	500		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
16	100	500		MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Fixed Tune RF Trans.

*Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STRATOVOX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1		MK401	D13-133	AM-60-Z	Volume Control
B	Shaft			Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "

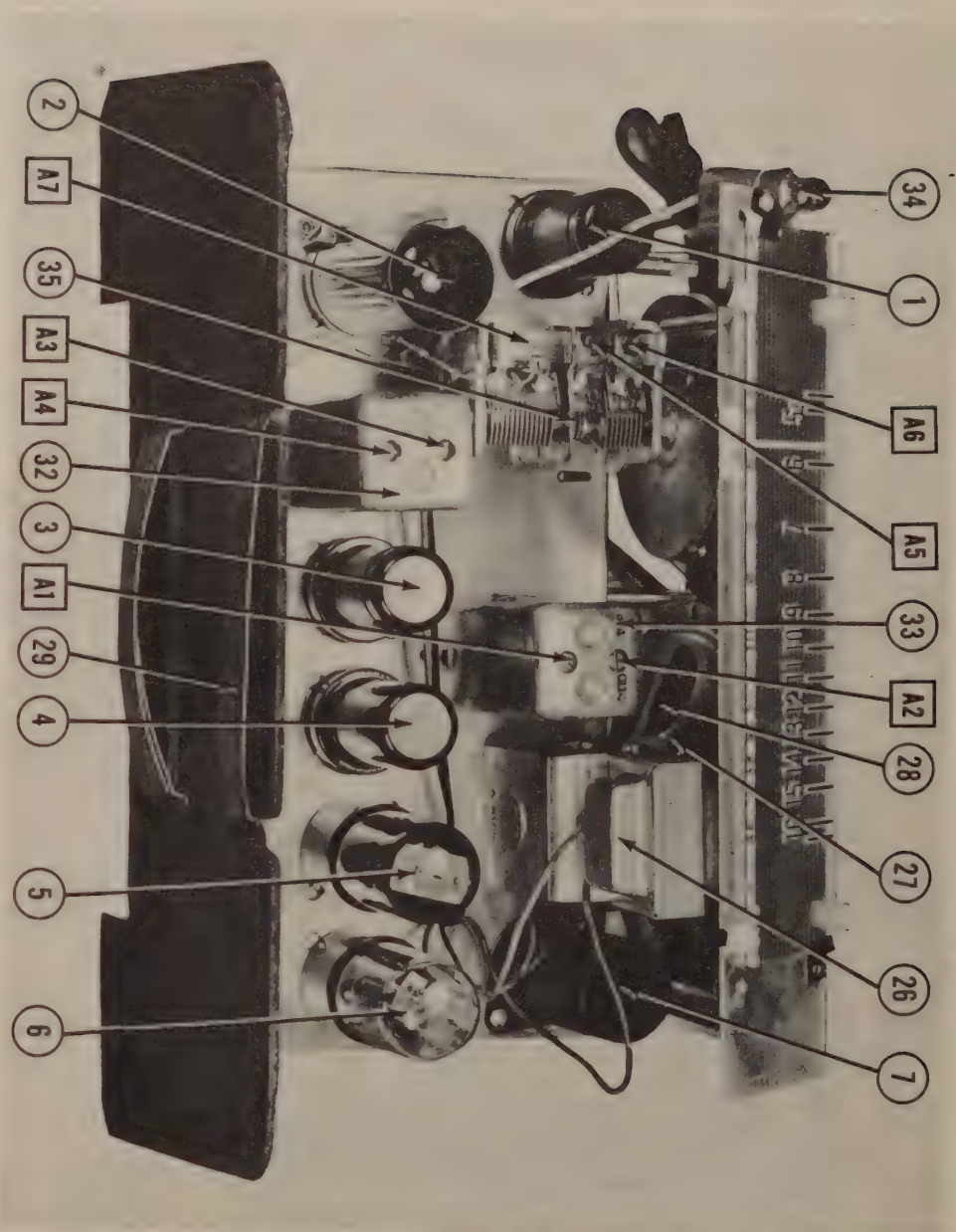
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STRATOVOX PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
18	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AVC Network
19	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
20	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolating
21	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
22	6.8 Meg.	½		BTS-6.8 Meg.	Blue-Gray-Grn. 1st AF Grid
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
24	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
25	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: STRATOVOX PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
26	2250Ω	3.5Ω	230Ω	.65Ω		A-3876†	T-22S45†		†Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			STRATOVOX PART No.	JENSEN PART No.		
27	FIELD RES. 350Ω	VC IMP. 3.5Ω	C-51058	ST-450‡ Mod. H5-S		‡Add 100Ω 5 watt resistor in series with field coil.
28	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

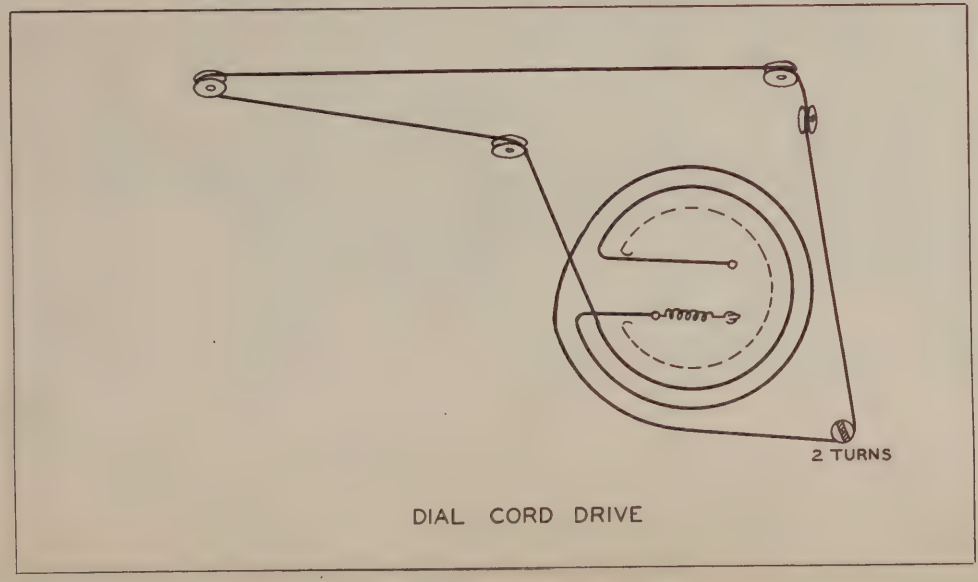
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	STRATOVOX PART No.	MEISSNER PART No.	
29	Loop Ant.		.6Ω			
30	RF Coil	3Ω	1Ω	B51237	14-1027	
31	Osc. Coil	1Ω	9.3Ω	B51256		
32	Input IF	29Ω	22Ω	B51010-1	16-6658	
33	Output IF	3Ω		B51011-1	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					STRATOVOX PART No.		
34	Bayonet	6-8	0.15	Brown			Type 47

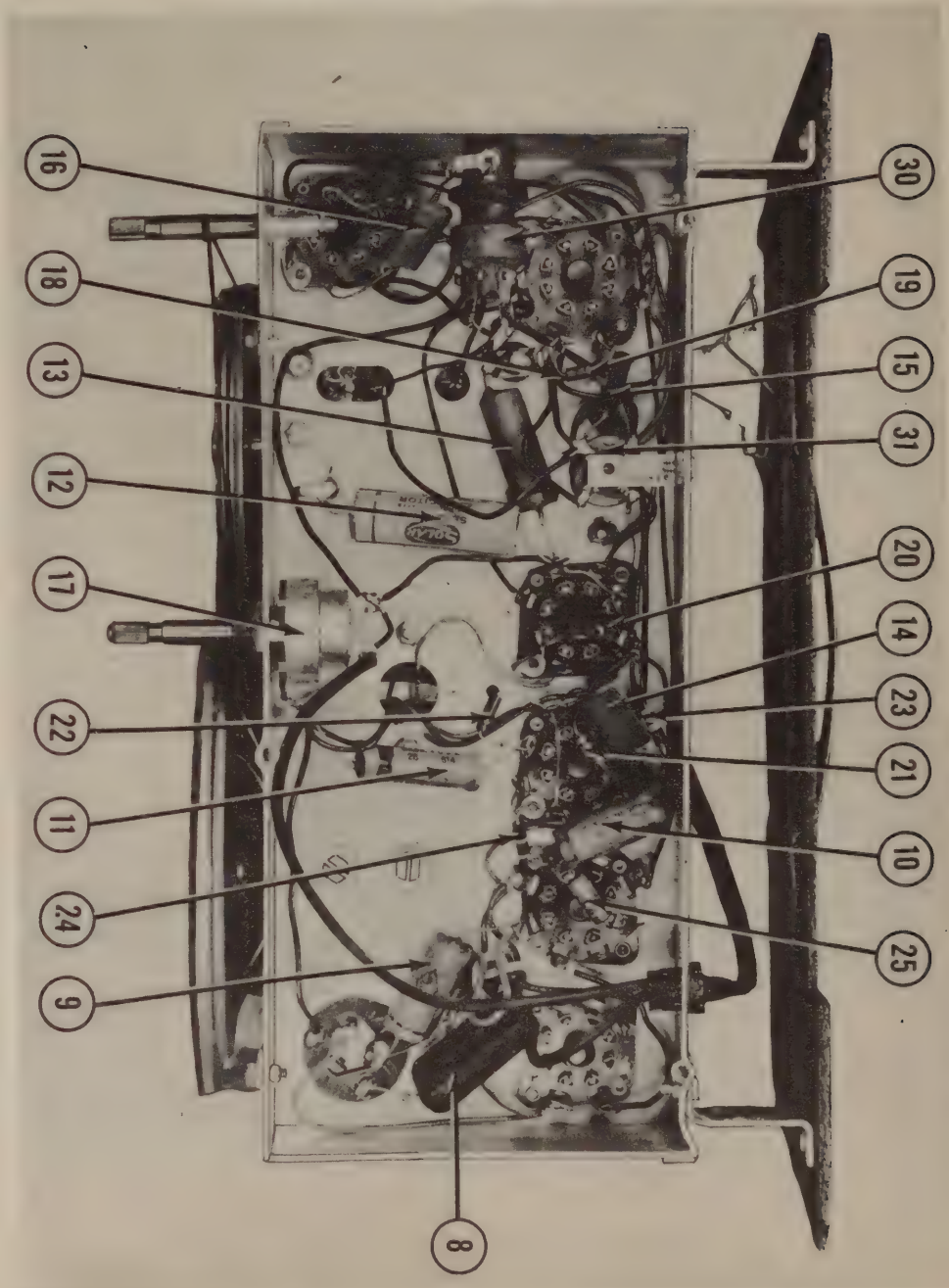
MISCELLANEOUS

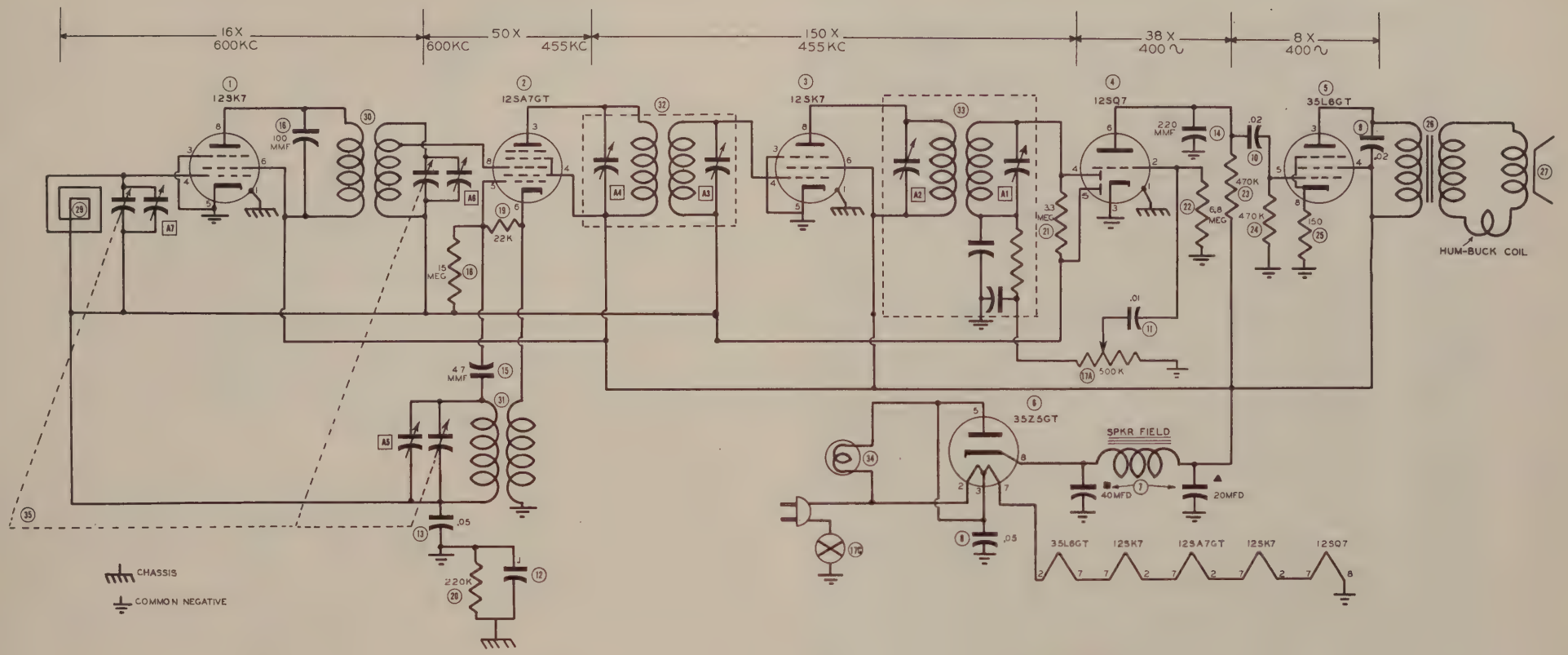
ITEM No.	PART NAME	STRATOVOX PART No.	NOTES
35	Tuning Cap.		2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	0V.	48.2V.AC	0V.	-.4V. DC	0V.	92V.DC	36.8V.AC	92V.DC
2	12SA7	0V.	36.8V.AC	92V.DC	92V.DC	-4.6V.DC	0V.	25V.AC	-4V.DC
3	12SK7	0V.	25V.AC	0V.	-.4V.DC	0V.	92V.DC	12.8V.AC	92V.DC
4	12SQ7	0V.	-.45V.DC	0V.	-.25V.DC	-4V.DC	50V.DC	12.8V.AC	0V.
5	35L6GT	0V.	86V.AC	86V.DC	92V.DC	0V.	0V.	48.2VAC	5V.DC
6	35Z5GT	0V.	117V.AC	112V.AC	0V.	112V.AC	0V.	86V.AC	117V.DC

RESISTANCE READINGS

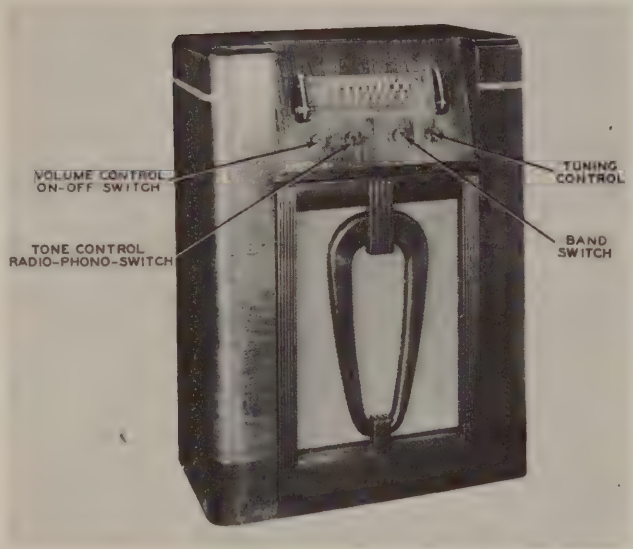
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	220KΩ	48Ω	0Ω	2.7MEG	0Ω	120KΩ	36Ω	120KΩ
2	12SA7	220KΩ	36Ω	120KΩ	120KΩ	24KΩ	1Ω	24Ω	2.7MEG
3	12SK7	220KΩ	24Ω	0Ω	2.7MEG	0Ω	120KΩ	13Ω	120KΩ
4	12SQ7	220KΩ	8MEG	0Ω	480KΩ	2.7MEG	590KΩ	13Ω	0Ω
5	35L6GT	INF	82Ω	120KΩ	120KΩ	420KΩ	INF	48Ω	140Ω
6	35Z5GT	INF	115Ω	112Ω	INF	112Ω	INF	82Ω	120KΩ

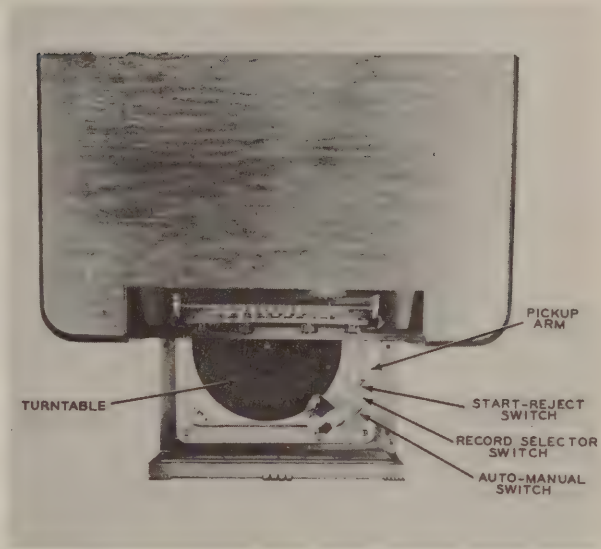
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-32

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.





TRUETONE
MODEL D-1645

TRUETONE MODEL D1645

TRADE NAME	Truetone Model D2645
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Combination Automatic Phono. - 2 Band Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SA7 Mixer, 6SK7 1st IF Amp., 6SF7 2nd IF-Det-AVC, 6SJ7 1st AF, 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	105-125 Volts AC — RATING - .370 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC — **SHORT WAVE** 9-15.6MC

ALIGNMENT INSTRUCTIONS

To set pointer, tune in 1400KC signal for maximum output. Attach pointer to drive cord at 1400KC mark on the dial scale. Volume control at maximum volume and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #8 of 6SA7. Low side to chassis.	455KC	BC	High freq. end of dial. (Gang fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
100 MMF	High side to ant. lead. Low side to chassis.	1620KC	"	"	"	A5	" " " "
"	"	1400KC	"	Tune to maximum output.	"	A6	" " " "
"	"	600KC	"	"	"	A7	Rock dial and adjust for maximum output. Recheck A5 at 1620KC and A6 at 1400KC
400Ω	"	15.6 MC	SW	High freq. end of dial. (Gang fully open)	"	A8	Adjust for maximum output
"	"	14 MC	"	Tune to maximum output.	"	A9	Rock dial and adjust for maximum output.
100 MMF	"	1400KC	BC	"	"	A6	After chassis is reassembled in cabinet, adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Mixer	6SA7	6SA7	8R	
2	1st IF Amp.	6SK7	6SK7	8N	
3	2nd IF-Det.-AVC	6SF7	6SF7	7AZ	
4	1st AF	6SJ7	6SJ7	8N	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7A	40	450	45X346	FP346	DY-2x40-450/	EL-330		UP9DJ53	● Filter
B	40	450			20-25				■ "
C	20	25							▲ Cath. Bypass
8	.004	600	P66402	TP407	S-6-004	TC-24	684-004	DT6D4	6V6 Plate Bypass
9	.01	400	D66103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.004	400	D66402	TP407	S-6-004	TC-24	484-004	DT6D4	Tone Compensation
11	.025	400	D64253	TP451			484-025	DT4S25	Audio Plate Decoup.
12	.1	400	D66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Screen Bypass
13	.005	400	D66502	TP408	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
14	.04	400	D66403	TP425	S-6-04	TC-14	484-04	DT4S4	Tone Compensation
15	.04	400	D66403	TP425	S-6-04	TC-14	484-04	DT4S4	Screen Bypass
16	.05	200	B66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
17	.04	400	D66403	TP425	S-6-04	TC-14	484-04	DT4S4	6SA7 Screen Bypass
18	.0005	200	B66501	TP403	S-6-0005	TC-35	1468-0005	DT6T5	RF Coupling
19	470	500	47X505	MC245	MO.5-35	1FM-35	1468-0005	5W5T5	Audio Plate Bypass
20	100	500	47X476	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	IF Filter Diode
21	68	500	47X471	MC230	MOS.5-47	MS-47	1469-00007	5W5Q7	" " "
22	47	500	47X463	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Tone Compensation
23	47	500	47X463	MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	IF Coupling
24	68	500	47X466	MC230	MOS.5-47	MS-47	1469-00007	5W5Q7	Osc. Grid Capacitor
25	286	500	47X481						Fixed Padder
26	40	500	47X472	MCB223	MOS.5-44	MS-44	1469-00004	5R5Q4	Fixed Trimmer
27	360	500	47X474						Fixed Padder
28	47	500	47X473	MCB225	MOS.5-45	MS-45	1469-00005	5R5Q5	Fixed Trimmer
29	270	500	47X445	MC241	MO.5-33	MS-33	1468-0003	5W5T3	Loop Pr. Shunt

CONTROLS

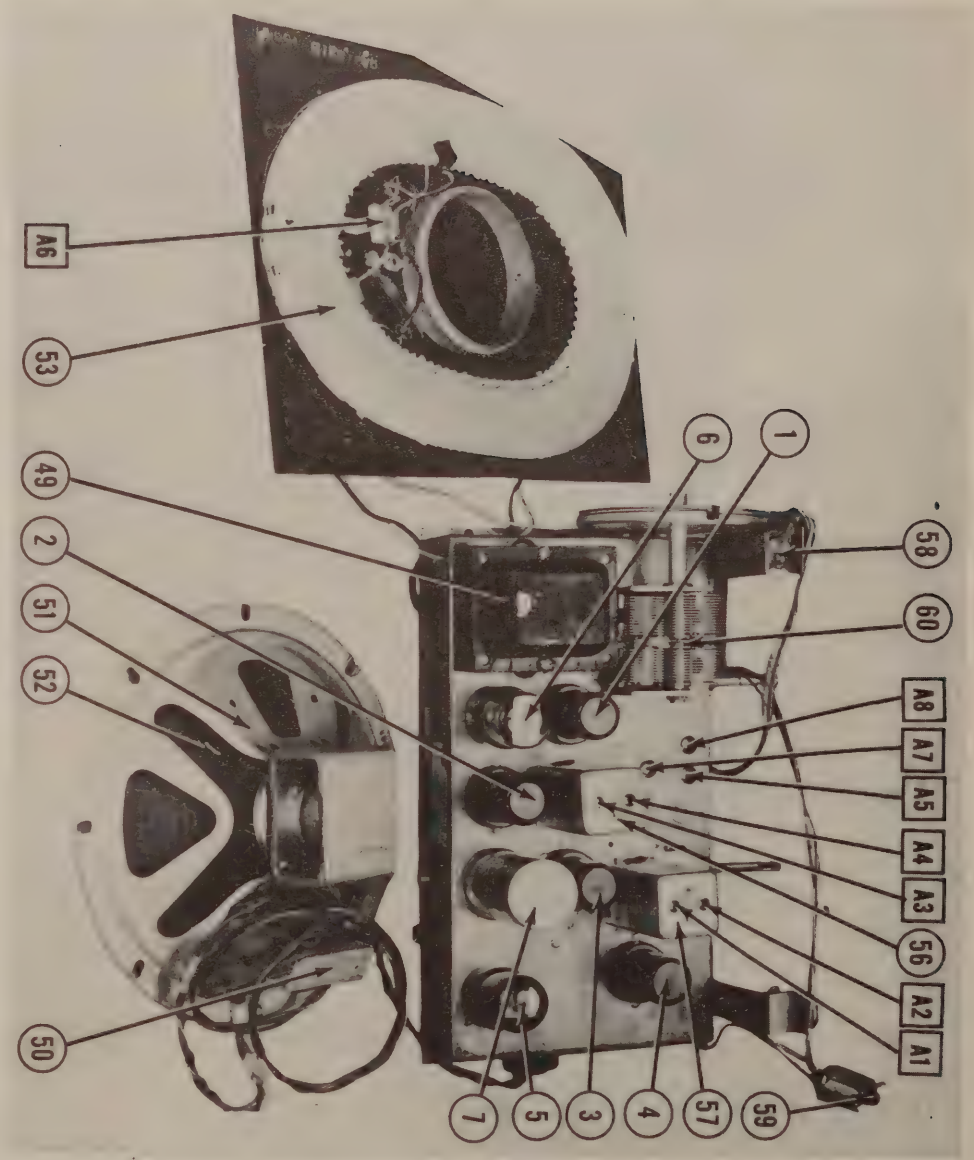
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
30A	500KΩ	1	36X358	TM227	D13-133X	AT-92*	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 30A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
31A	3 Meg.	1	40X276				Tone Control
B	Shaft		Not Req.				
31A	3 Meg.	1	40X281	UM165	D13-140	AM-67-Z	Tone Control-See Note 1
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 31C per instructions

*Use 100KΩ tap, cut other tap off
Note 1 - Attach original arm to tone control shaft to actuate radio-phono switch.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	
32	2.2 Meg.	½	B85225	BTS-2.2 Meg	Red-Red-Grn. Converter Grid
33	39KΩ	1	C84393	BTA-39K	Or.-White-Or. Mixer Screen Dropping
34	39KΩ	½	B84393	BTS-39K	Or.-White-Or. Osc. Grid
35	39KΩ	1	C84393	BTA-39K	Or.-White-Or. IF Screen Dropping
36	2200Ω	½	B84222	BTS-2200	Red-Red-Red IF Plate Load
37	1 Meg.	½	B84105	BTS-1 Meg.	Br.-Blk.-Grn. IF Grid
38	2.2 Meg.	½	B85225	BTS-2.2 Meg	Red-Red-Grn. AVC Network
39	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. IF Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONTINUED)

40	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
41	10 Meg.	½	B85106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
42	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. 1st AF Screen Dropping
43	33KΩ	½	B84333	BTS-33K	Or.-Or.-Or. 1st AF Plate Load
44	82KΩ	½	B84823	BTS-82K	Gray-Red-Or. 1st AF Plate Filter
45	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
46	270Ω	1	C84271	BW-1-270	Red-Vi.-Br. Output Cathode
47	2Ω	½	43X213	BW-½-2.2	Series Pilot Light
48	1800Ω	2	D84182	BT-2-1800	Br.-Gray-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	
49	117V AC @ .370A	485V CT @ .060A	6.35V AC @ 2.5A		53X282			

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
50	5800Ω	3.3Ω	520Ω	1.25Ω	Part of 12A436	A-3877	T-14885		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-115		
51	PM	3.3Ω	12A436	Mod. P8-V		
	CONE DIA.	VC DIA.				
52	7-5/16"	11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
53	"B" Loop Ant	25Ω	2Ω	9A1821		
54	"D" Ant.Coil	1Ω	0Ω	9A1812	14-1044	
55A	"B" Osc. "	1Ω	2Ω	9A1813		Items 55A, 55B wound on same form
55B	"D" " "	,	0Ω	9A1813		
56	Input IF	22Ω	20.5Ω	9A1814	16-6658	
57	Output IF	19.8Ω	18.2Ω	9A1815	16-6660	

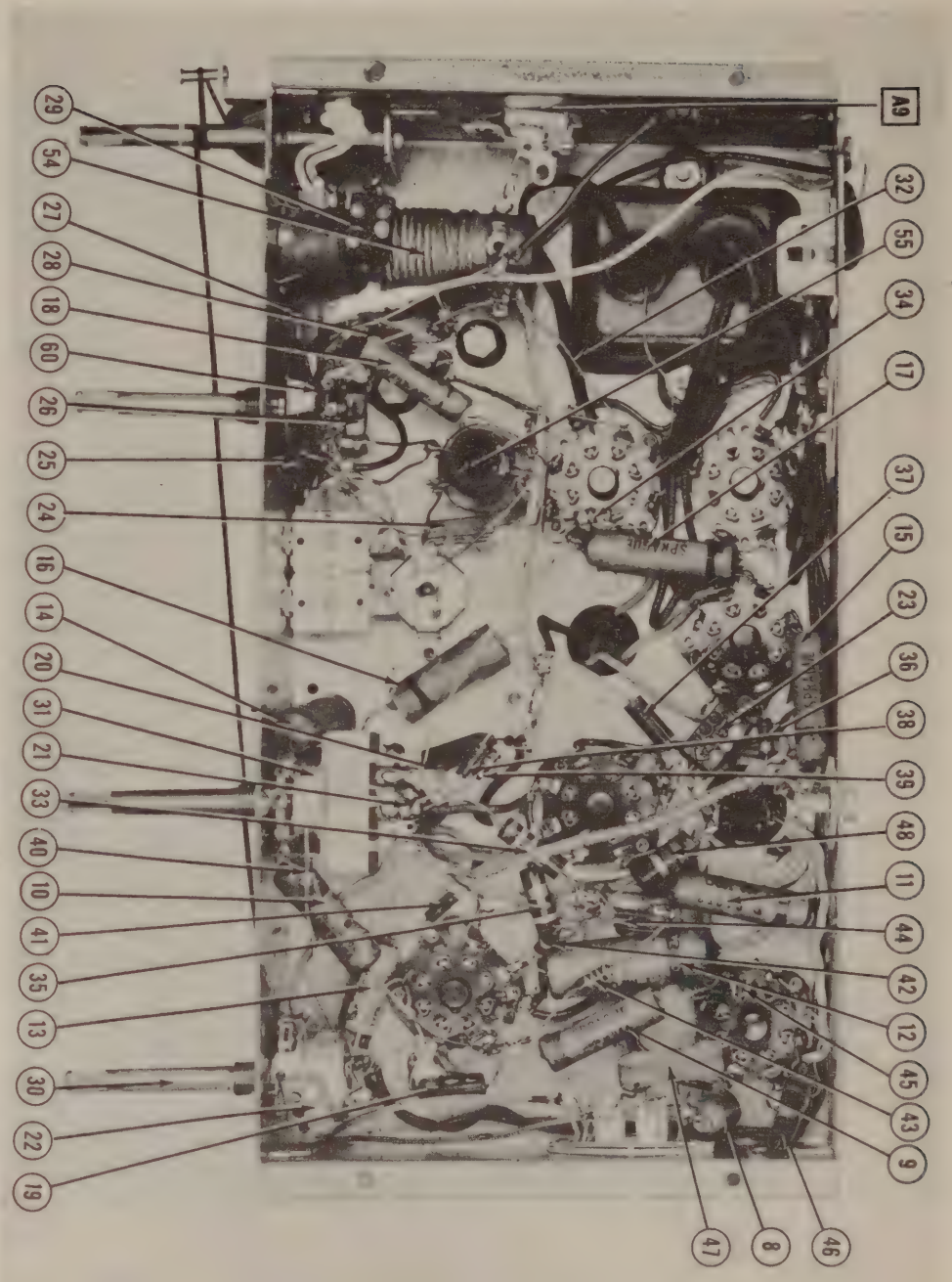
DIAL LIGHT

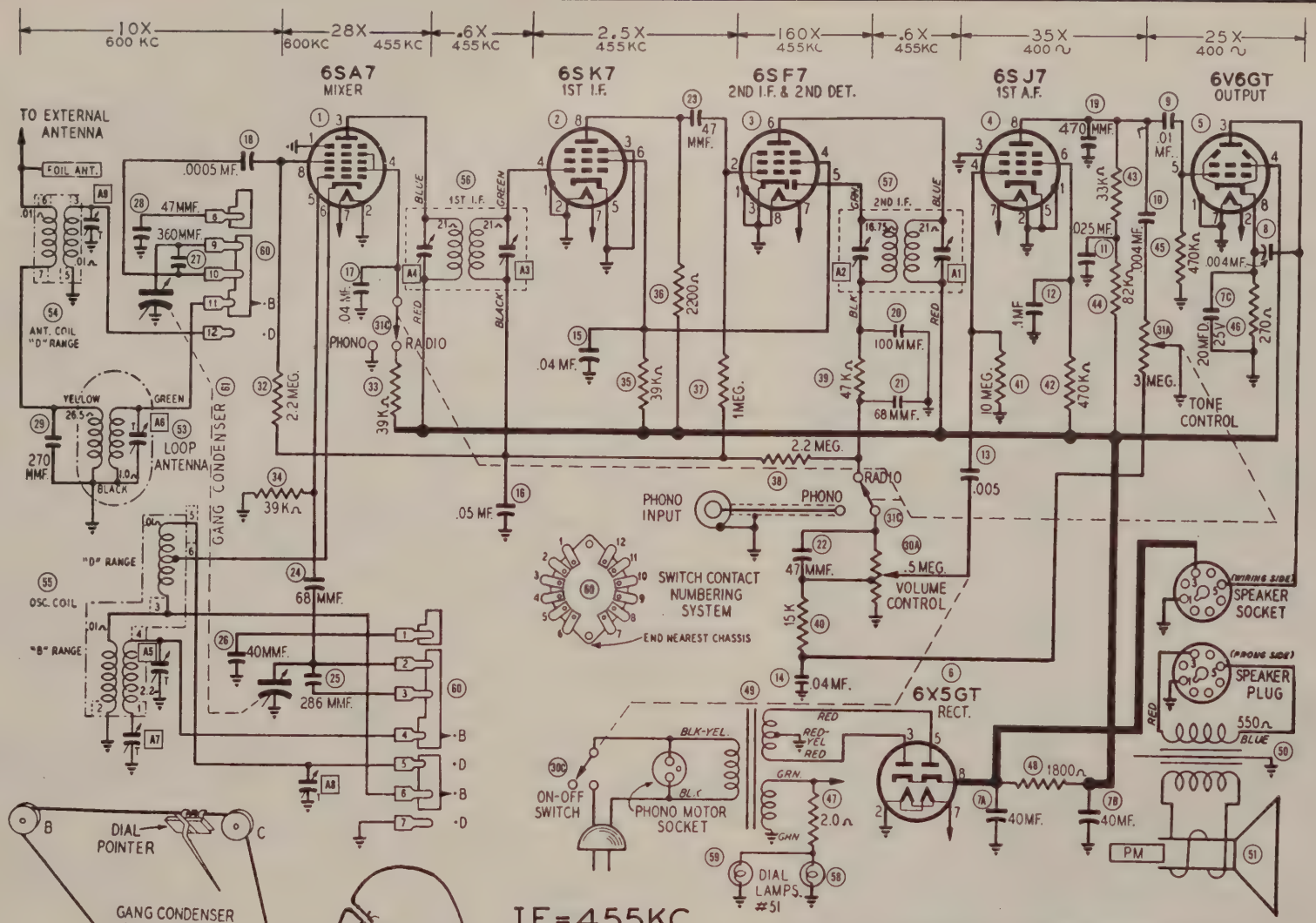
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
58	Bayonet	6-8	0.15	Brown			Type 47
59	"	6-8	0.15	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
60	Switch	2A359	Band Change
61	Tuning Cap.	14A178	2 Gang Var. Cap. with Drive Pulley
A5	Trimmer Cap.	17A109	BC Osc. Adj. 2.5-35 MMF.
A8	Trimmer Cap.		SW Osc. Adj. 2.5-35 MMF.
A6	Trimmer Cap.	17A235	BC Ant. Adj. 2-12 MMF.
A7	Padder Cap.	17A157	BC Osc. Pad 440-490 MMF.
A9	Trimmer Cap.	17A164	SW Ant. Adj. 5-50 MMF.
	Pickup Cartridge	0-4242-14	or equivalent
	Knob	10A467	Tuning
	"	10A468	Off-On, Volume
	"	10A529	Tone, Radio-Phono
	"	10A469	Band Change

CHASSIS—BOTTOM VIEW





NOTE: VOLT. & RES. READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0V.	0V.	200V.DC	63V. DC	-1.6V.DC	0V.	6.3V.AC	-.02V.DC
2	6SK7	0V.	0V.	0V.	-.25V.DC	0V.	60V.DC	6.3V.AC	183V.DC
3	6SF7	0V.	-.3V.DC	0V.	60V.DC	-.35V.DC	200V.DC	6.3V.AC	0V.
4	6SJ7	0V.	0V.	0V.	-4V.DC	0V.	31V.DC	6.3V.AC	65V.DC
5	6V6GT	0V.	6.3V.AC	230V.DC	200V.DC	0V.	0V.	0V.	96V.DC
6	6X5GT	0V.	0V.	245VAC	0V.	245VAC	0V.	6.3V.AC	247V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0Ω	0Ω	90KΩ	129KΩ	39KΩ	1Ω	.1Ω	4.5MEG
2	6SK7	0Ω	0Ω	0Ω	2.7MEG	0Ω	129KΩ	.1Ω	92KΩ
3	6SF7	0Ω	4 MEG	0Ω	129KΩ	460KΩ	90KΩ	.1Ω	0Ω
4	6SJ7	0Ω	0Ω	0Ω	11 MEG	0Ω	560KΩ	.1Ω	205KΩ
5	6V6GT	0Ω	.1Ω	90KΩ	90KΩ	470KΩ	INF	0Ω	260Ω
6	6X5GT	INF	0Ω	183Ω	INF	173Ω	INF	.1Ω	90KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WATTERSON
MODEL 4582

WATTERSON
MODEL 4582

WATTERSON MODEL 4582

TRADE NAME	Watterson Model 4582
MANUFACTURER	Watterson Radio Mfg. Corp., 2700 Swiss Ave., Dallas, Texas
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	1½ Volt "A" Battery: 90 Volt "B" Battery in Pack Form. Burgess Battery Pack No. 6TA60 or equivalent.
RATING	235MA @ 1½ Volt DC & 12MA @ 90 Volt DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS

Turn tuning assembly fully counter-clockwise and set pointer at 1650KC. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to grid cap of 1A7. Low side to chassis.	455KC	High freq. end. (Cores out of coils)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF	High side to ext ant. Low side to chassis.	1600KC	1600KC	"	A5	" " " "
200 MMF	"	1400KC	Tune to maximum output.	"	A6	" " " "
200 MMF	"	600KC	"	"	A7	Rock dial and adjust for maximum output. Recheck A5 at 1600KC and A6 at 1400KC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WATTERSON PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Pwr. Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WATTERSON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5	10	25	19W-4	TC-22	M-10-25	TA-10	PRS25-10	BR102A	Bias Filter
6	.002	400	5W-3	TP405	S-6-002	TC-22	484-002	DT6D2	3Q5 Plate Bypass
7	.01	400	5W-6	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
8	.005	400	5W-2	TP403	S-6-005	TC-25	484-005	DT6D5	" "
9	.02	400	5W-7	TP423	S-4-02	TC-12	484-02	DT4S2	IF Grid Bypass
10	.25	400	5W-50	TP430	S-4-25	TC-2	484-.25	DT4P25	RF Bypass Pwr. Supp.
11	.1	400	5W-13	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
12	.1	400	5W-13	TP428	S-4-1	TC-1	484-.1	DT4P1	Conv. Screen Bypass
13	100	500	6W-1	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
14	250	500	6W-2	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	IF Bypass Vol. Cont.
15	250	500	6W-2	MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Osc. Anode Bypass
16	50			MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor Cer.
17	500	500	6W-3	MC245	M0.5-35	1FM-35	1468-0005	5W5T5	AVC Filter
18	50	500	6W-4	MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Ant. Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	WATTERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	500KΩ	1	13W-2	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

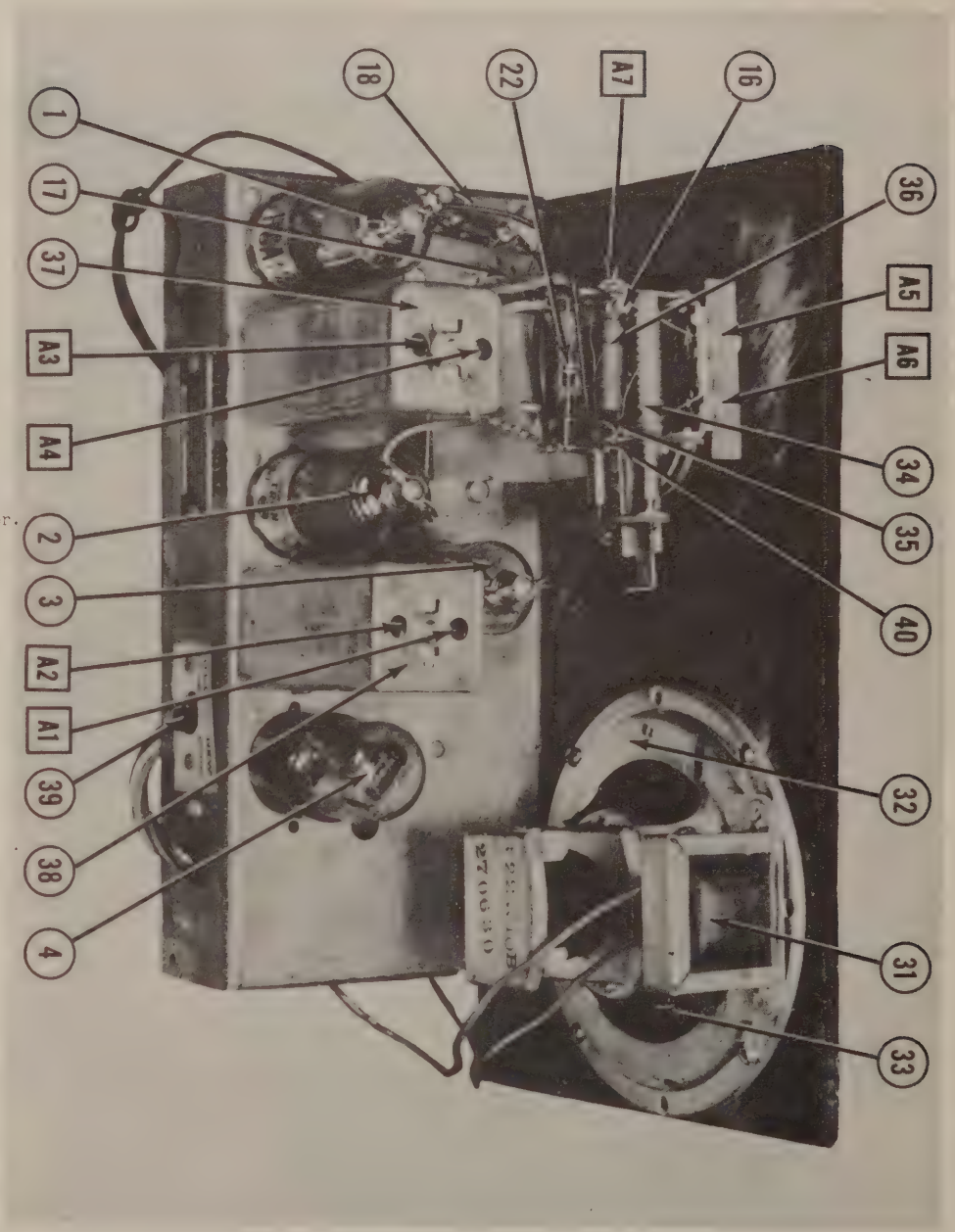
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WATTERSON PART No.	IRC PART No.	
20	200KΩ	½	9W-5	BTS-220K	Red-Blk.-Yl. Osc. Grid
21	50KΩ	½	9W-4	BTS-47K	Grn.-Blk.-Or. Converter Screen Dropping
22	100KΩ	½	9W-28	BTS-100K	Br.-Blk.-Yl. AVC Network
23	20KΩ	½	9W-6	BTS-22K	Red-Blk.-Or. Osc. Anode
24	1 Meg.	½	9W-10	BTS-1 Meg.	Br.-Blk.-Grn. IF Grid
25	1 Meg.	½	9W-10	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
26	1 Meg.	½	9W-10	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
27	10 Meg.	½	9W-9	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
28	5.1 Meg.	½		BTS-4.7 Meg	Grn.-Br.-Grn. Output Grid
29	400Ω	½		BTS-390	Yl.-Blk.-Br. Bias
30	.75Ω	½	9W-12	BW-½-.82	Vi.-Grn.-Silver Series Filament

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WATTERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
31	8000Ω	3.5Ω	430Ω	.6Ω	12W-2	A-3878	T-14S84		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

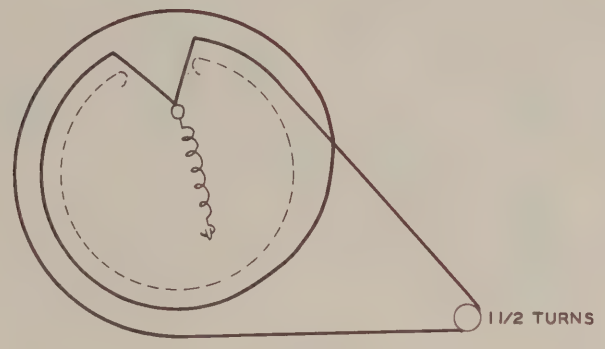
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WATTERSON PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-106		
32	PM	3.5Ω	22W-10B	Mod. P5-W		
	CONE DIA.	VC DIA.				
33	4-3/4"	1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	WATTERSON PART No.	MEISSNER PART No.	
34	Ant. Coil		5.3Ω			Items 34, 35 ganged and slug tuned. May be obtained as a complete unit under part no. 4W-1.
35	Osc. Coil		7.8Ω			
36A	Osc. Trimmer	9.5Ω				Items 36A, 36B, included in the tuning unit no. 4w-1.
B	Osc. Padder	2Ω				
37	Input IF	11.5Ω	24Ω	3W-24	16-6658	
38	Output IF	17Ω	13Ω	3w-25	16-6660	

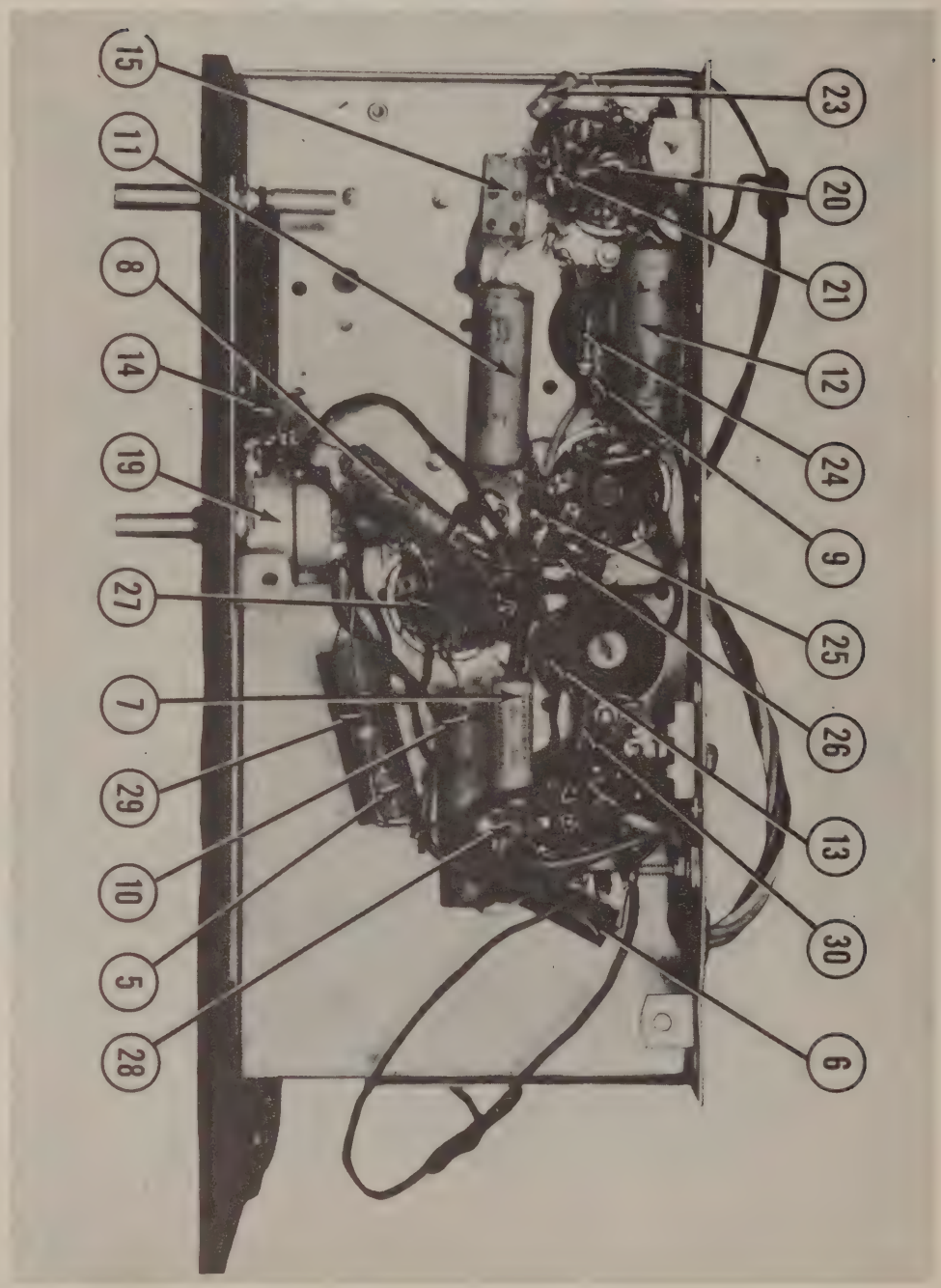
MISCELLANEOUS

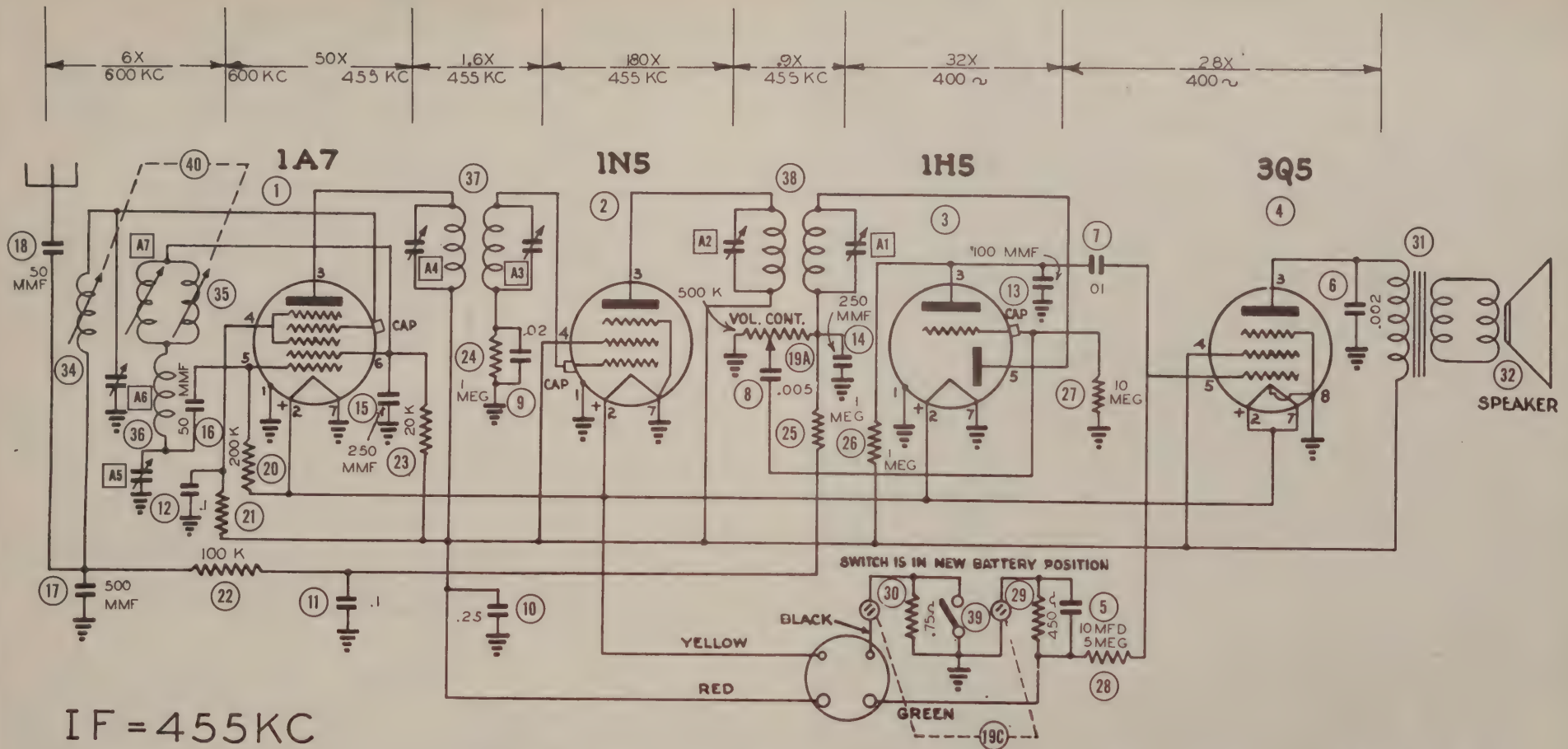
ITEM No.	PART NAME	WATTERSON PART No.	NOTES
39	Switch		Battery Saver SPST
40	Tuning Assby.	4W1	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





IF = 455KC

NOTE: VOLTAGE & RESISTANCE READINGS TAKEN WITH BATTERY SWITCH IN THE "NEW" POSITION.

466-34

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	1.45V.DC	90V.DC	47V. DC	-.4V.DC	70V.DC	0V.	90V.DC	0V.
2	1N5GT	0V.	1.45V.DC	90V.DC	90V. DC	0V.	0V.	0V.	0V.	0V.
3	1H5GT	0V.	1.45V. DC	57V.DC	0V.	-.05V.DC	0V.	0V.	0V.	0V.
4	3Q5GT	0V.	1.45V. DC	87V.DC	90V.DC	-.4V. DC	-.2V.D C	1.45V.DC	0V.	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0 Ω	*	INF	INF	195 KΩ	INF	*	INF	1.5MEG
2	1N5GT	0 Ω	*	INF	INF	INF	1.4MEG	*	950 KΩ	950KΩ
3	1H5GT	0Ω	*	INF	15MEG	480KΩ	0Ω	*	INF	15MEG
4	3Q5GT	INF	*	INF	INF	5 MEG	.5Ω	*	0Ω	

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is grounded.

1 - DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

WESTINGHOUSE
MODELS H-122, H-130

WESTINGHOUSE
MODELS H-122, H-130

WESTINGHOUSE MODEL 122

TRADE NAME	Westinghouse Models H-122, H-130
MANUFACTURER	Westinghouse Electric Corp., Home Radio Div., Sunbury, Pa.
TYPE SET	Model H-122-Combination Auto. Phono. & Superheterodyne Receiver. Radio Section AC-DC Phono Section AC only. Model H-130- AC-DC Superhet., Self Contained Loop Antenna
TUBES (SIX)	Types, 6SA7 Converter, 6SF7 IF Amp.-Det.-AVC, 6SC7GT AF Amp.-Inverter, 2-25L6GT Power Output, 25Z6GT Rectifier.
POWER SUPPLY	105-120 Volts AC-DC, H-122 Phono. AC only
TUNING RANGE—BROADCAST	550-1600KC RATING .425 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 2 of 6SF7. Low side to B-.	455KC	High freq.end of dial.(Variable fully open.)	Across voice coil	A1,A2.	Adjust for maximum output.
"	High side to pin 8 of 6SA7. Low side to B-.	"	"	"	A3,A4.	" " " "
200 MMF.	High side to ant. terminal. Low side to B-.	1615KC	"	"	A5	" " " "
	Radiated signal. (No actual connection)	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SA7	6SA7	8R	
2	IF Amp.-Det.-AVC	6SF7	6SF7	7AZ	
3	AF Amp.-Inverter	6SC7GT	6SC7GT	8S	
4	Power Output	25L6GT	25L6GT	7AC	
5	Power Output	25L6GT	25L6GT	7AC	
6	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WESTINGHOUSE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	V-3304	2N520	M-50+30-150	TA-530		BRD3515	Filter - Green
B	50	150							" - Red
8	.05	400	RCP10W4503A	TP426	S-4-05	TC-15	484-05	DT4S5	Line Filter
9	.1	400	RCP10W4104A	TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
10	.01	400	RCP10W4103A	TP421	S-4-01	TC-11	484-01	DT4S1	25L6 Plate Bypass
11	.01	400	RCP10W4103A	TP421	S-4-01	TC-11	484-01	DT4S1	" " "
12	.01	400	RCP10W4103A	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
13	.01	400	RCP10W4103A	TP421	S-4-01	TC-11	484-01	DT4S1	" "
14	.005	600	RCP10W6502A	TP408	S-6-005	TC-25	684-005	DT6D5	" "
15	.01	400	RCP10W4103A	TP421	S-4-01	TC-11	484-01	DT4S1	Tone Compensation
16A	.002	600	RCP10W6202A	TP405	S-6-002	TC-22	684-002	DT6D2	Phono Shunt
B	.01	400	RCP10W4103A	TP421	S-4-01	TC-11	484-01	DT4S1	" " *
17	.1	400	RCP10W4104A	TP428	S-4-1	TC-1	484-.1	DT4P1	Shield Isolation
18	.05	400	RCP10W4503A	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
19	.05	400	RCP10W4503A	TP426	S-4-05	TC-15	484-05	DT4S5	" "
20	.05	400	RCP10W4503A	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
21	.1	400	RCP10W4104A	TP428	S-4-1	TC-1	484-.1	DT4D1	Osc. Tuned Circuit
22	.2	400	RCP10W4204A	TP429	S-4-2	TC-2	484-.2	DT4D2	Line Isolating
23	.01	400	RCP10W4103A	TP421	S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
24	300	500	RCM20A301M	MC241	MO.5-33*	MS-33	1468-0003	5W5T3	Audio Plate Bypass
25	68	500	RCM20A680M	MC230	MOS.5-47	MS-47	1469-00007	5W5Q7	Osc. Grid Capacitor

*Used in some models

CONTROLS

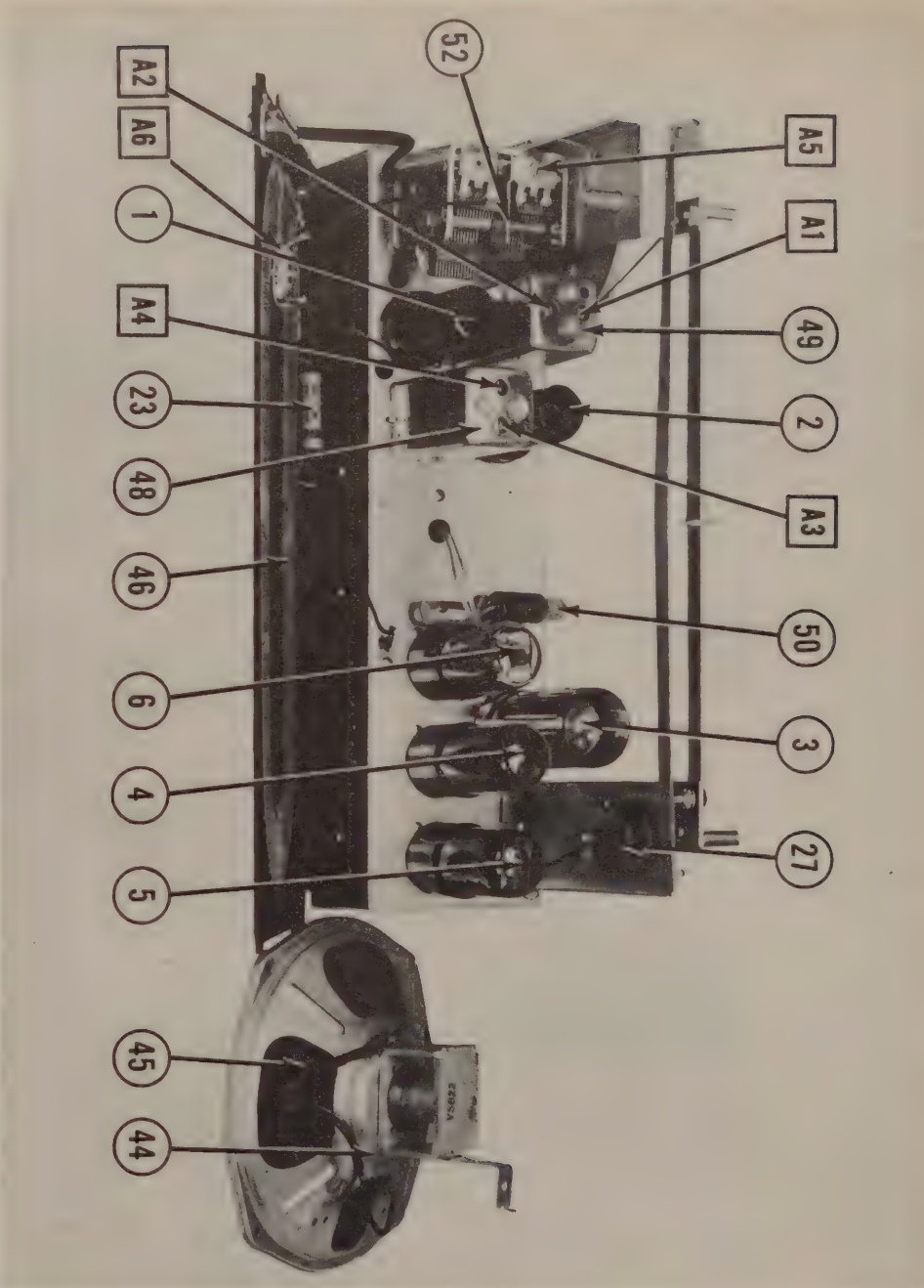
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WESTING. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	1 Meg.	1	V-3298	MR53	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 26A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
27A	1 Meg.	1	V-3303	MR53	D13-137	M-63-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 27A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WESTINGHOUSE PART No.	IRC PART No.	IDENTIFICATION CODES
28	22KΩ	½	RC10AE223M	BTS-22K	Red-Red-Or. Osc. Grid
29	3300Ω	½	RC10AE332M	BTS-3300	Or.-Or.-Red Converter Screen Dropping
30	22KΩ	½	RC10AE223M	BTS-22K	Red-Red-Or. AVC Network
31	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
32	220KΩ	½	RC20AE224K	BTS-220K	Red-Red-Yl. Line Isolating
33	10 Meg.	½	RC10AE106M	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
34	220KΩ	½	RC20AE224K	BTS-220K	Red-Red-Yl. 1st AF Plate Load
35	180KΩ	½	RC20AE184K	BTS-180K	Br.-Gray-Yl. Inverter Plate Load
36	82KΩ	½	RC10AE823K	BTS-82K	Gray-Red-Or. Inverter Grid
37	270KΩ	½	RC10AE274K	BTS-270K	Red-Vi.-Yl. Output Grid
38	330KΩ	½	RC10AE334K	BTS-330K	Or.-Or.-Yl. Output Grid
39	91Ω	1	RC30AE910J	BTA-100	White-Br.-Blk. Output Cathodes
40	1500Ω	2	RC40AE152M	BT-2-1500	Br.-Grn.-Red Filter
41	22Ω	½	RC20AE220M	BW-½-22	Red-Red-Blk. Rectifier Ballast
42	72Ω	10	V-3311	ABA-75‡	Line Dropping and Pilot Light Shunt

‡Adjust tap to 12Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WESTINGHOUSE PART No.	STANCOR PART No.	THORDARSON PART No.		
	PRI.	SEC.	PRI.	SEC.					
43	4770Ω	3.3Ω	260Ω	.44Ω	V-3297	A-3823	T-22S46		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WESTINGHOUSE PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-110		
44A	PM	3.3Ω	V-3822	Mod. P6-X		
B			V-3291			Alternate speaker.
	CONE DIA.	VC DIA.				
45	6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

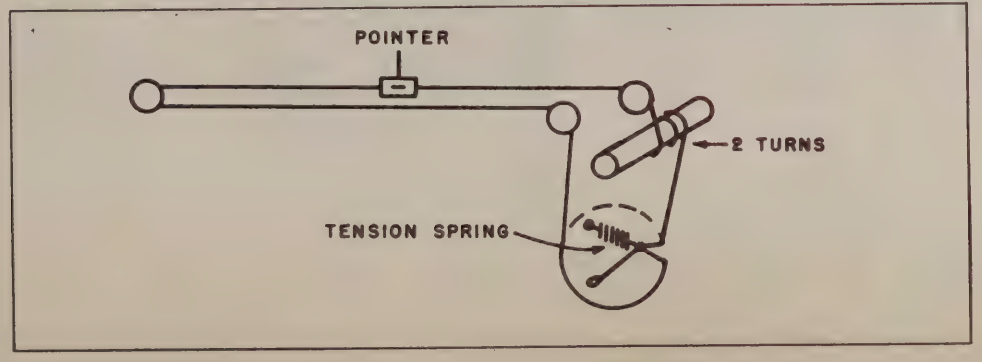
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	WESTINGHOUSE PART No.	MEISSNER PART No.	
46A	Loop Ant.	0Ω	1Ω	V3660		Model H-122
B	Loop Ant.			V3666		Model H-130
47	Osc. Coil		4.3Ω	V3382	14-1040	
48	Input IF	29Ω	27Ω	V3328	16-6658	
49	Output IF	21Ω		V3329	16-6670	

DIAL LIGHT

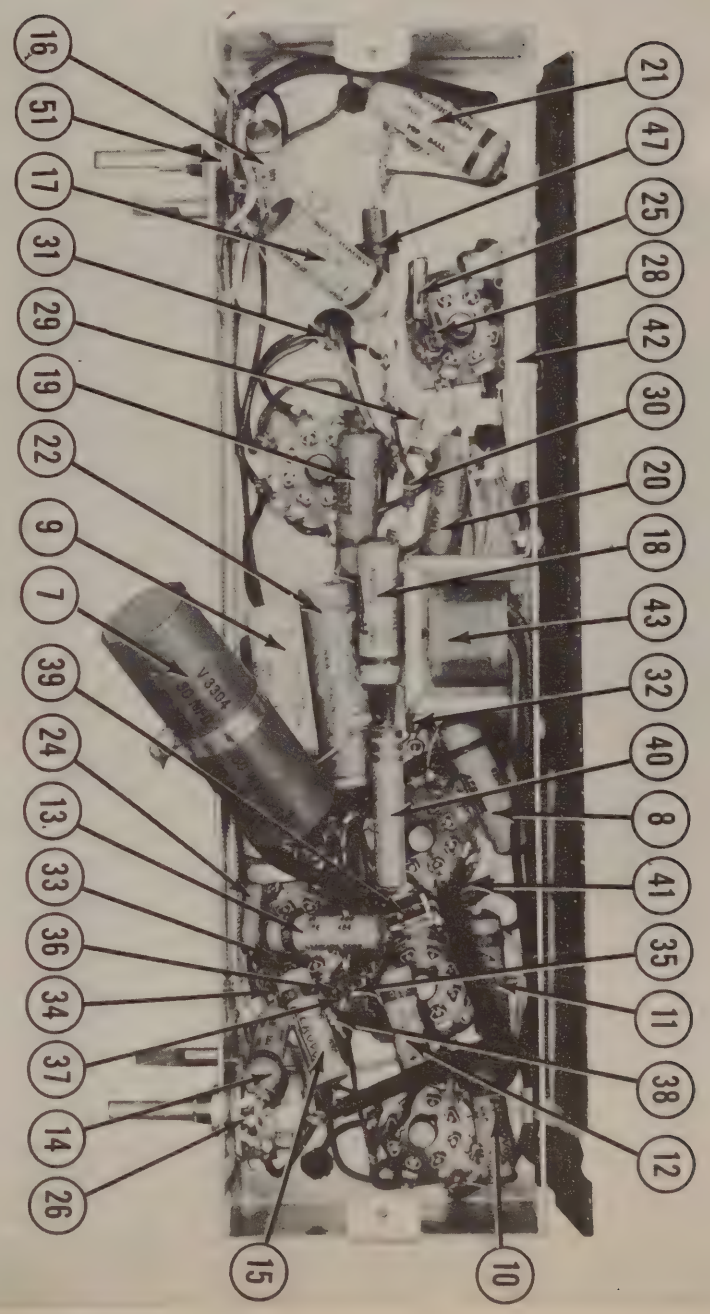
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					WESTINGHOUSE PART No.		
50	Bayonet	6-8	0.15	Brown	V3335		Type 47

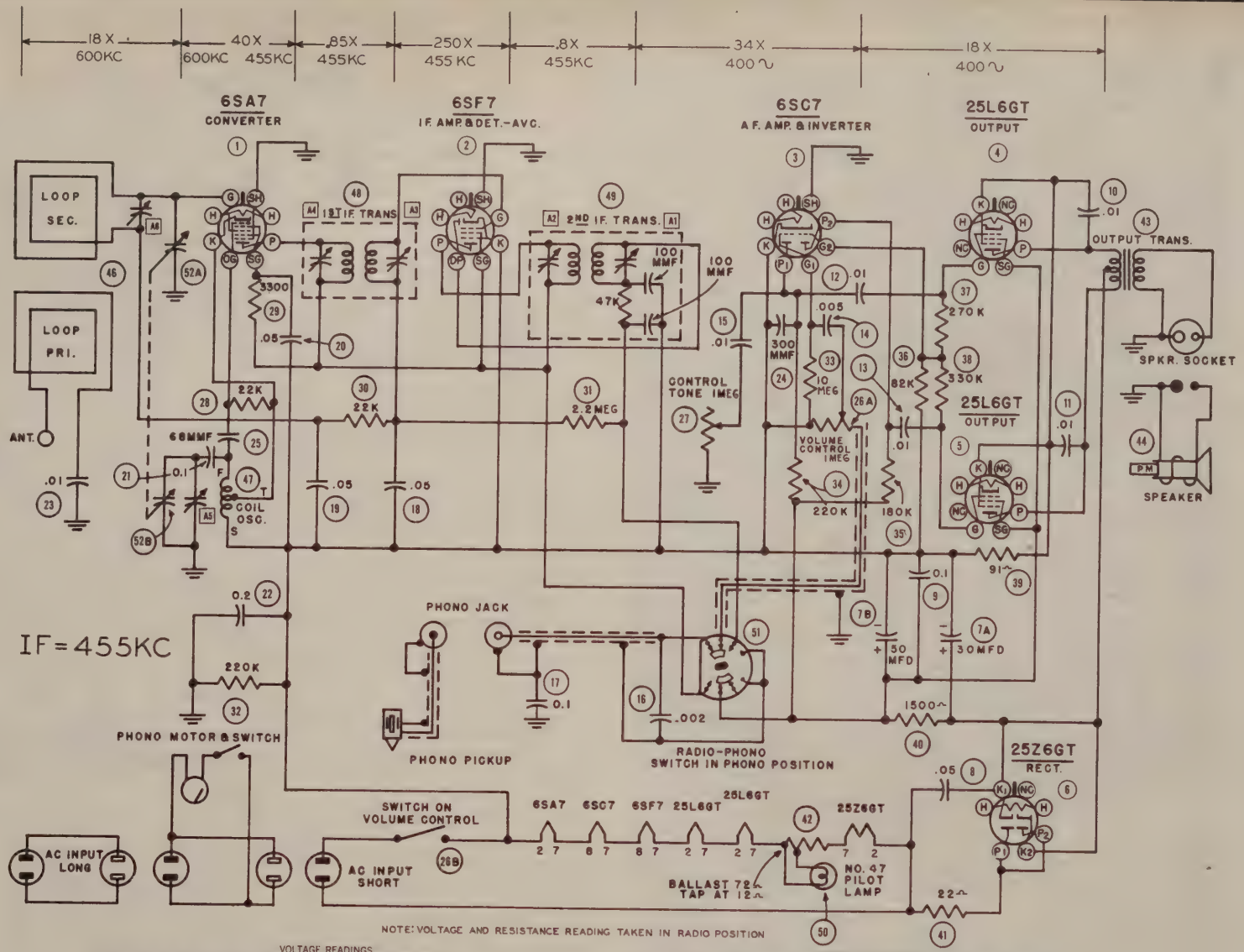
MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
51	Switch	V-3301	Radio-Phono
52	Tuning Cap.	V-3535	2 Gang Variable Cap.
	Cabinet	V-1109-1	Model H-122 Radio Sect.
	"	V-1110-1	" " Phono "
	"	V-1111-2	" H-130
	Dial	V-3425	Model H-122
	"	V-3647-2	" H-130
	Knob	V-3413	H-122 (Tone & Tuning)
	"	V-3262-2	H-130 " "
	"	V-3331-1	H-122 (Volume)
	"	V-3667-2	H-130 "
	"	V-3331-2	H-122 (Radio-Phono)
	"	V-3667-4	H-130 " "



CHASSIS—BOTTOM VIEW





NOTE: VOLTAGE AND RESISTANCE READING TAKEN IN RADIO POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0V	0V	82V. DC	62V. DC	-3.4VDC	0V	6.4V.AC	-3.5V.DC
2	6SF7	0V	-.45VDC	0V	82V. DC	-.45VDC	82V. DC	19V. AC	12.5V.AC
3	6SC7GT	0V	28V. DC	-.45V.DC	-5V. DC	44V. DC	0V	12.5V.AC	6.4V. AC
4	25L6GT	0V	45V. AC	111V. DC	82V. DC	-2V. DC	0V	72V. AC	5.6V. DC
5	25L6GT	0V	19V. AC	110V. DC	82V. DC	-2V. DC	0V	45V. AC	5.6V. DC
6	25Z6GT	0V	117V. AC	115V. AC	115V. DC	115V. AC	0V	92V. AC	115V. DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

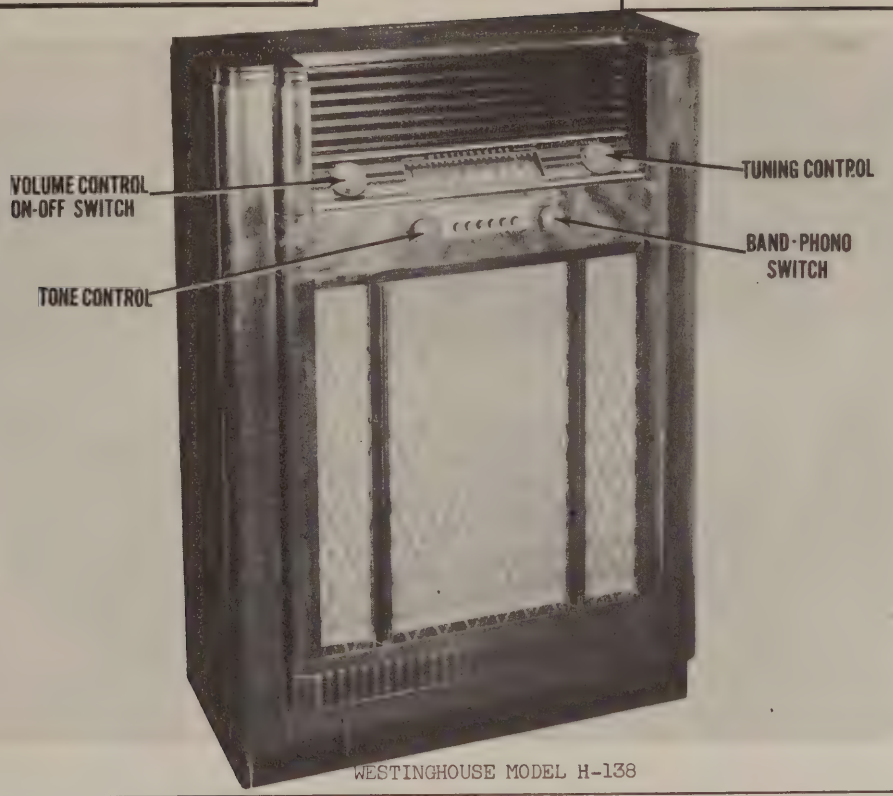
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	205Kn	0n	500Kn	500Kn	20Kn	.5n	4.5n	3.5 MEG
2	6SF7	205Kn	3.5 MEG	0n	500Kn	1.1 MEG	500Kn	12n	7.5n
3	6SC7GT	205Kn	800Kn	82Kn	10 MEG	720Kn	0n	7.5n	4.5n
4	25L6GT	INF	28n	500Kn	500Kn	370Kn	0n	45n	85n
5	25L6GT	INF	12n	500Kn	500Kn	410Kn	1.1 MEG	28n	85n
6	25Z6GT	INF	103n	125n	500Kn	125n	INF	90n	500Kn

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-35

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



WESTINGHOUSE MODEL H-138

TRADE NAME	Westinghouse Model H-138
MANUFACTURER	Westinghouse Electric Corp., Home Radio Div., Sunbury, Pa.
TYPE SET	AC Combination Automatic Phono. - Superheterodyne Receiver with Self Contained Loop Antenna & Automatic Tuning.
TUBES (SEVEN)	Types, 6SK7 RF Amp., 6SA7 Translator, 6SK7 IF Amp., 6SF7 Det.-AVC-AF, 2 - 6Y6G Power Output, 5U4G Rectifier.
POWER SUPPLY	105-120 Volts AC RATING - 1.08 Amps. @ 117V AC
TUNING RANGE—BROADCAST	530-1600KC SHORT WAVE 4.8-18MC

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #8 (grid) 6SA7 Low side to chassis.	455KC	BC	Low freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	High side to pin #4 (grid) 6SK7 (RF). Low side to chassis.	"	"	"	"	A5	" " minimum "
400Ω res.	High side to SW ant. terminal. Low side to chassis.	16MC	SW	16MC	"	A6,A7.	Adjust for maximum output. If two peaks are obtained when adjusting A6, minimum capacity peak is correct.
200 MMFD	High side to BC ant. terminal. Low side to chassis.	1600KC	BC	1600KC	"	A8	Adjust for maximum output
"	"	1400KC	"	Tune in 1400 KC signal.	"	A9	" " " "
"	"	600KC	"	Tune in 600KC signal.	"	A10	Rock dial and adjust for maximum output. Repeat adjustments A8 at 1600KC and A10 at 600KC
	Loop	1400KC	"	Tune in 1400 KC signal.	"	A9	Place chassis near cabinet, connect loop to loop terminals. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop. Adjust A9 for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WESTINGHOUSE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Translator	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SF7	6SF7	7AZ	
5	Power Output	6Y6G	6Y6G	7AC	
6	Power Output	6Y6G	6Y6G	7AC	
7	Rectifier	5U4G	5U4G	5T	

CAPACITORS

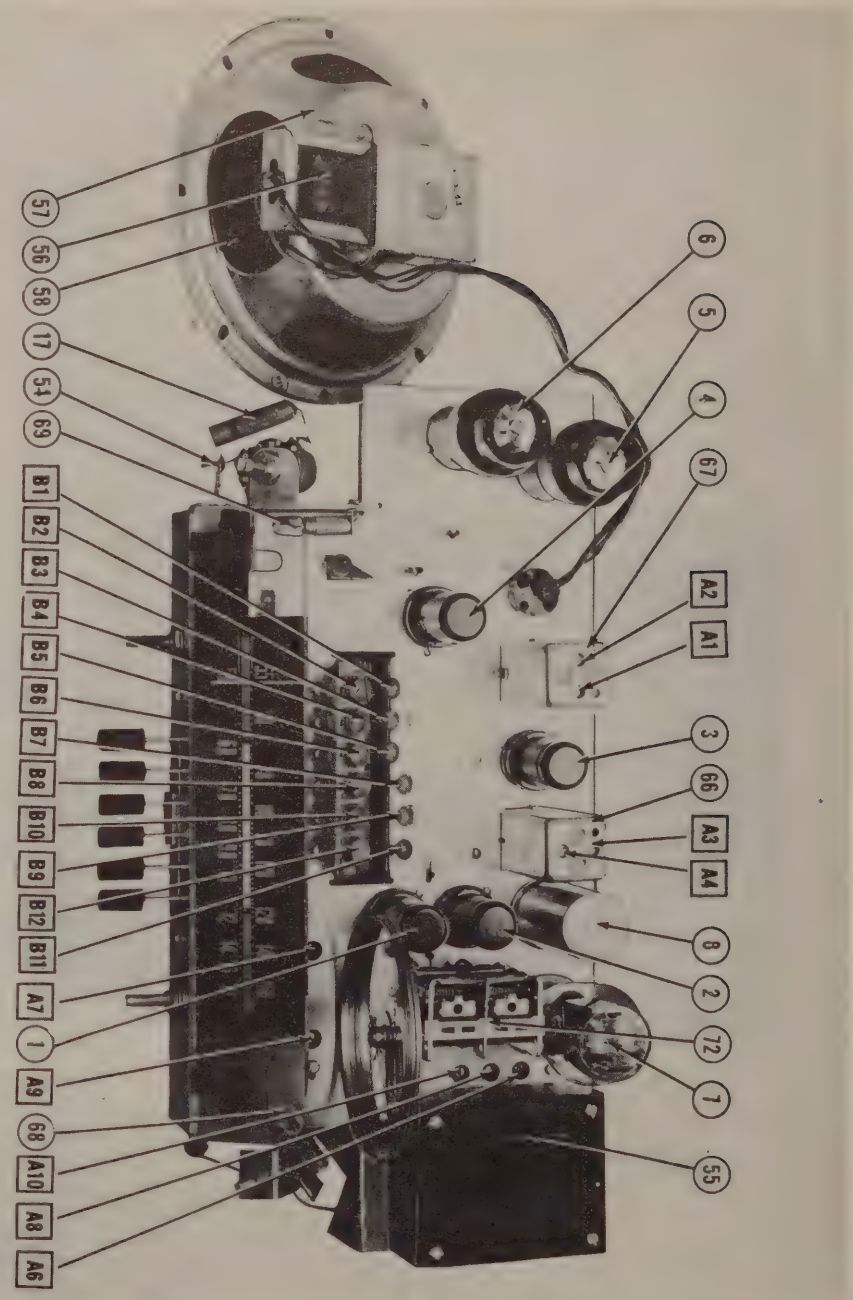
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WESTINGHOUSE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8A	40	350	V-3216	FP429	DY-40+30+10-450/20-25	EL-424		UP9DJ53	● Filter
B	40	350							■ "
C	5	250							▲ "
D	20	25							Cath. Bypass
9	20	25	V-3236	TC26	M-25-25	TA-25	PRS25-25	BR202A	Audio Cath. Bypass
10A	.05	600		TP415	MPW-6-05	TC-15		MD6S5	Line Bypass
B	.05	600		TP415	MPW-6-05	TC-15		MD6S5	" "
11	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	6Y6 Plate Bypass
12	.005	600		TP408	S-6-005	TC-25	684-005	DT6D5	" " "
13	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
14	.05	400		TP426	S-4-05	TC-15	484-05	DT4S5	Audio Screen Bypass
15	.1	400		TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Plate Decoup.
16	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Tone Compensation
17	.03	400		TP424	S-6-03	TC-13	484-03	DT4S3	" "
18	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
19	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	Phono Bypass
20	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	AVC Filter
21	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	IF Screen Bypass
22	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	Screen Bypass
23	150	500		MC236	MO.5-315	1FM-315	1468-00015	5W5T15	Audio Plate Bypass
24	150	500		MC236	MO.5-315	1FM-315	1468-00015	5W5T15	RF Coupling SW
25	47	500		MC225	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
26	33	500			MO.5-43	MS-43		5W5Q3	RF Coupling BC
27	180	500		MC237	MO.5-32	1FM-32	1468-0002	5W5T2	Osc. Feedback
28	2200	300		MC457	MW.5-22	1FM-22	1467-002	1W5D2	Osc. Cathode
29	2800	300		MC461	MW.5-23	1FM-23	1467-003	1W5D3	Fixed Padder SW
30	68	500		MC230	MOS.5-47	MS-47	1469-00007	5W5Q7	RF Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	WESTINGHOUSE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
31A	2 Meg.	1	V-3221	TM254	D13-139X	T-120	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 31A per instructions
C	Switch		Not Req.	M26	41	SW-A	" " " " "
32A	2 Meg.	1	V-3222	MR55	D13-139	M-66-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 32A per instructions

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WESTINGHOUSE PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
33	68KΩ	½		BT-2-68K	Blue-Gray-Red RF Plate Load
34	10KΩ	2		BT-2-10K	Br.-Blk.-Or. RF Screen Dropping
35	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Grid
36	22KΩ	½		MTA-22K	Red-Red-Or. Osc. Grid
37	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
38	22KΩ	½		BTS-22K	Red-Red-Or. IF Screen Dropping
39	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
40	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Diode Load
41	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Screen Dropping
42	680Ω	½		BTS-680	Blue-Gray-Br. 1st AF Cathode
43	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
44	47KΩ	½		BTS-47K	Yl.-Vi.-Or. 1st AF Plate Filter
45	680KΩ	½		BTS-680K	Blue-Gray-Yl. Feedback
46	100Ω	½		BW-3-100	Br.-Blk.-Br. Output Grid Suppressor
47	100Ω	½		BW-3-100	Br.-Blk.-Br. Output Grid Suppressor
48	220KΩ	½		BTS-220K	Red-Red-Yl. Output Grid Load
49	33Ω	½		BW-3-33	Or.-Or.-Blk. Parasitic Suppressor
50	33Ω	½		BW-3-33	Or.-Or.-Blk. " "
51	120Ω	2		BW-2-120	Output Cathode
52	4700Ω	2		BT-2-4700	Yl.-Vi.-Red Output Screen Dropping
53	15KΩ	5		AB-15A	Br.-Grn.-Or. Bleeder
54	10KΩ	½		BTS-10K	Br.-Blk.-Or. Tone Compensation

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA WESTINGHOUSE PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDASON PART No.	INSTALLATION NOTES
55	117 VAC @ 1.08A.	530 VCT @ .185A	5.0 VAC @ 2.9A	6.1 VAC @ 4.0A	V-3250			

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA WESTINGHOUSE PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.		INSTALLATION NOTES
56	11000Ω	3.7Ω	70Ω	.5Ω			T-22845†		†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA WESTING-HOUSE PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
57	FIELD RES. 150Ω VC IMP. 3.6Ω CONE DIA. VC DIA.	V-3244			
58	8" 3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA WESTINGHOUSE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
59	Loop Ant.	0Ω				
60	BC Ant.Coil		3Ω			
61	SW " "	.4Ω	0Ω		14-1044	
62	BC RF "	19.8Ω	58Ω			
63	" Osc. "		7.8Ω			Items63, 64 on same form
64	SW " "		0Ω			
65	Osc.Cath."	4Ω				
66	Input IF	15.9Ω	15Ω		16-6658	
67	Output IF	16.6Ω			16-6670	

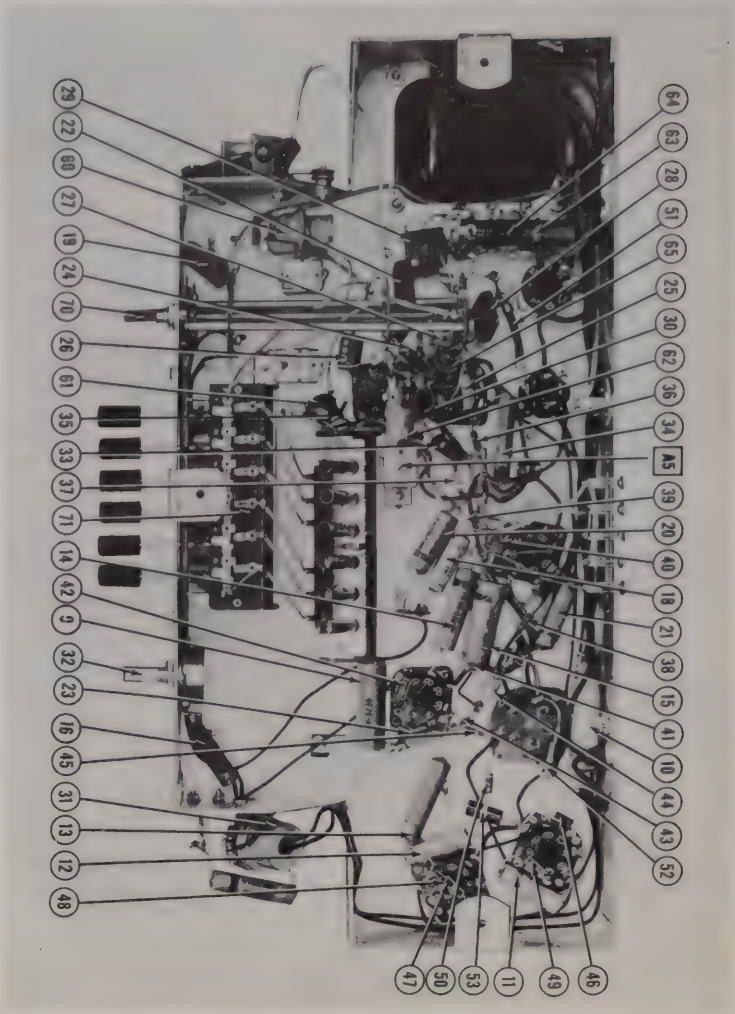
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA WESTINGHOUSE PART No.		INSTALLATION NOTES
68	Bayonet	6-8	0.25	Blue			Type 44
69	"	6-8	0.25	"			"

MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
70	Switch		Phono-Band-Tuning
71	Auto. Tuning		Complete Assby.
72	Tuning Cap.		2 Gang Tuning Cap.

CHASSIS—BOTTOM VIEW



PUSH-BUTTON ADJUSTMENTS

The six push buttons and associated adjustments from left to right (facing front of receiver) cover the following frequency ranges: 530 to 900KC, 530 to 900KC, 530 to 900KC, 900 to 1600KC, 900 to 1600KC, and 900 to 1600KC. To set up six different stations for automatic tuning, proceed as follows:

1 - Turn on radio and allow at least 5 minutes to warm up before making adjustment.

2 - List six desired stations arranged in order from low to high frequencies.

3 - Set phono-band switch to broadcast band manual tuning, tune in first station on list (lowest frequency).

4 - Set phono-band switch for push-button tuning and depress button to extreme left (viewed from front). Adjust B1 to tune in station. Lowest frequency is with screw all the way in.

5 - Adjust B2 for maximum volume of station.

6 - Repeat adjustments.

7 - Follow same procedure for setting up remaining push buttons. Always select a station within frequency range of push button and associated adjustments. B3, B5, B7, B9, B11 are adjusted to tune in station. B4, B6, B8, B10, B12 are adjusted for maximum volume of station.

DISASSEMBLY INSTRUCTIONS

1 - Remove the following push on type knobs: Volume control, tuning control, tone control, and phono-band switch.

2 - Remove the two felt washers from the tone control and phono-band switch shafts.

3 - Disconnect the two loop antenna cord connections from back of chassis.

4 - Remove screw from speaker plug.

5 - Remove speaker plug from top of chassis.

6 - Remove three hex bolts holding chassis to cabinet. Remove chassis.

7 - Remove the four wood screws holding the speaker to the cabinet mounting board. Remove speaker.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	-.05V.DC	0V.	97V.DC	6.2V.AC	133V.DC
2	6SA7	0V.	0V.	215V.DC	97V.DC	-.15V.DC	0V.	6.2V.AC	-.15V.DC
3	6SK7	0V.	0V.	0V.	-.2V DC	0V.	107V.DC	6.2V.AC	215V.DC
4	6SF7	0V.	0V.	1.1V. DC	28V.DC	0V.	28V.DC	6.2V.AC	0V.
5	6Y6G	205V.DC	0V.	205V.DC	142V DC	0V.	0V.	6.2V.AC	14.5V.DC
6	6Y6G	0V.	0V.	205V.DC	142V DC	0V.	0V.	6.2V.AC	14.5V DC
7	5U4G	0V.	250V.DC	0V.	265VAC	0V.	265VAC	0V.	250V.DC

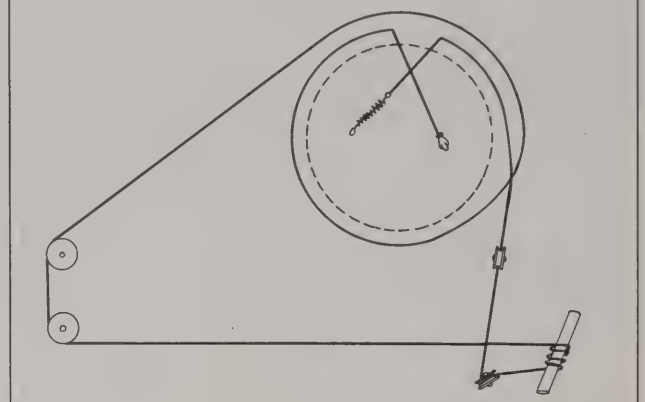
NOTE: VOLT. & RES. READINGS TAKEN IN STANDARD BROADCAST POSITION.

RESISTANCE READINGS

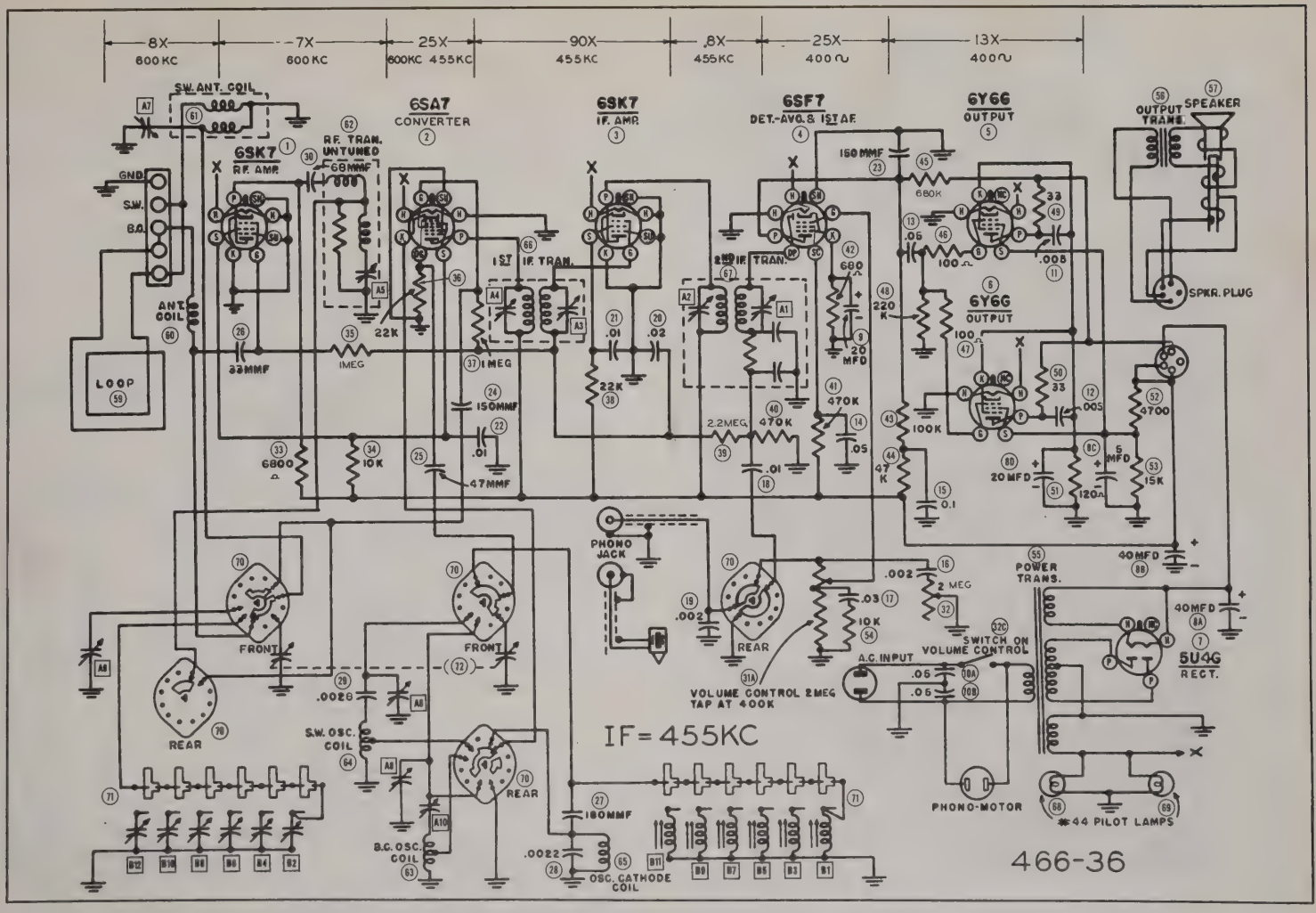
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	4 MEG	0Ω	30KΩ	0Ω	27KΩ
2	6SA7	0Ω	0Ω	20KΩ	30KΩ	22KΩ	3Ω	0Ω	4 MEG
3	6SK7	0Ω	0Ω	0Ω	3 MEG	0Ω	42KΩ	0Ω	16.5KΩ
4	6SF7	0Ω	2 MEG	625Ω	440KΩ	560KΩ	140KΩ	0Ω	0Ω
5	6Y6G	6.5KΩ	0Ω	16.5KΩ	12.5KΩ	255KΩ	255KΩ	0Ω	120Ω
6	6Y6G	255KΩ	0Ω	16.5KΩ	12.5KΩ	255KΩ	0Ω	0Ω	120Ω
7	5U4G	INF	16.5KΩ	INF	360Ω	INF	340Ω	INF	16.5KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

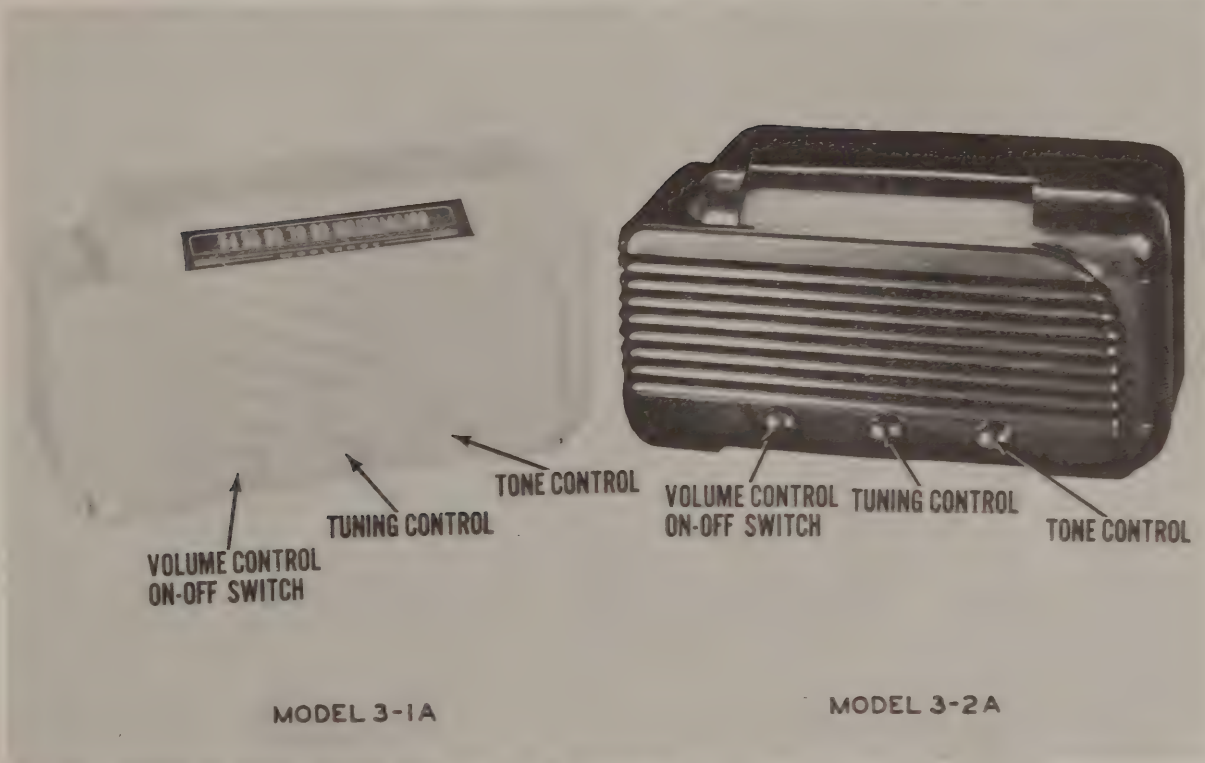
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



WOOLAROC
MODELS 3-1A, 3-2A

WOOLAROC MODELS 3-1A

TRADE NAME	Woolaroc Models 3-1A, (6-9022-J), 3-2A (6-9022-K)
SUPPLIER	Phillips Petroleum Co., Bartlesville, Okla.
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 1st Det.-Osc., 12SF7 IF-2nd Det.-AVC, 12SH7 1st AF Amp., 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC
TUNING RANGE—BROADCAST	535-1600KC RATING .235 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Turn tuning knob completely clockwise and check slug adjustment as shown in slug tuner assembly drawing. Solder approximately 8 inches of insulated wire to any B- terminal and reinstall chassis in cabinet allowing B- lead to extend from under chassis at the back. To check pointer, turn tuning knob clockwise as far as it will go. Pointer should be at 1600KC on the dial. If it is set incorrectly, reposition pointer. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control in maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to ungrounded terminal of A6. Low side to B-.	455KC	Any point of no interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Then repeat adjustment. If isolation trans. is not used reduce dummy to .001 MFD. to reduce excessive hum modulation.
300 MMF. Mica.	High side to ext. ant. clip on loop. Low side to B-.	1600KC	1600KC	"	A5	Adjust for maximum output.
300 MMF. Mica.	"	"	Tune to maximum output.	"	A6,A7.	" " " "
300 MMF. Mica.	"	1400KC	"	"	44,45.	Adjust slugs for maximum output. After adjustment apply speaker cement at top of each stem to prevent movement.
300 MMF. Mica.	"	1600KC	"	"	A6,A7.	Recheck adjustment for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WOOLAROC PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7	12SK7	8N	
2	1st Det.-Osc.	12SA7	12SA7	8R	
3	IF 2nd Det.-AVC	12SF7	12SF7	7AZ	
4	1st Audio	12SK7	12SK7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WOOLAROC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7A	40	150	500256	FP354*	DY-40+20-150	EL-24	AF-88D	UP4215*	■ Filter
B	20	150							▲ "
8	.2	400	502158	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
9	.05	400	502157	TP426	S-4-05	TC-15	484-.05	DT4S5	Line Filter
10	.01	400	502151	TP421	S-4-01	TC-11	484-.01	DT4S1	Pwr. Amp. Plate
11	.004	400	502156	TP407	S-6-004	TC-24	484-.004	DT6D4	Audio Coupling
12	.02	400	502152	TP423	S-4-02	TC-12	484-.02	DT4S2	Feedback
13	.05	200	502153	TP426	S-4-05	TC-15	484-.05	DT4S5	Audio Plate Decoup.
14	.002	400	502543	TP405	S-6-002	TC-22	484-.002	DT6D2	Audio Coupling
15	.0008	400	502470	MC451	MO.3-38	TC-21	1468-.00075	1W5T8	Tone Control
16	.1	200	502155	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
17	110	500	502160	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	Audio Plate Bypass
18	110	500	502160	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	RF Filter
19	50	500	502159	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cond.
20	260	500	502271	MC240	MO.5-325	1FM-325	1468-.00025	5W5T25	RF Coupling
21	1000	500	502165	MCB455	MW.5-21	MS-21	1467-.001	2R5D1	AVC Filter

*Parallel two sections for desired capacity.

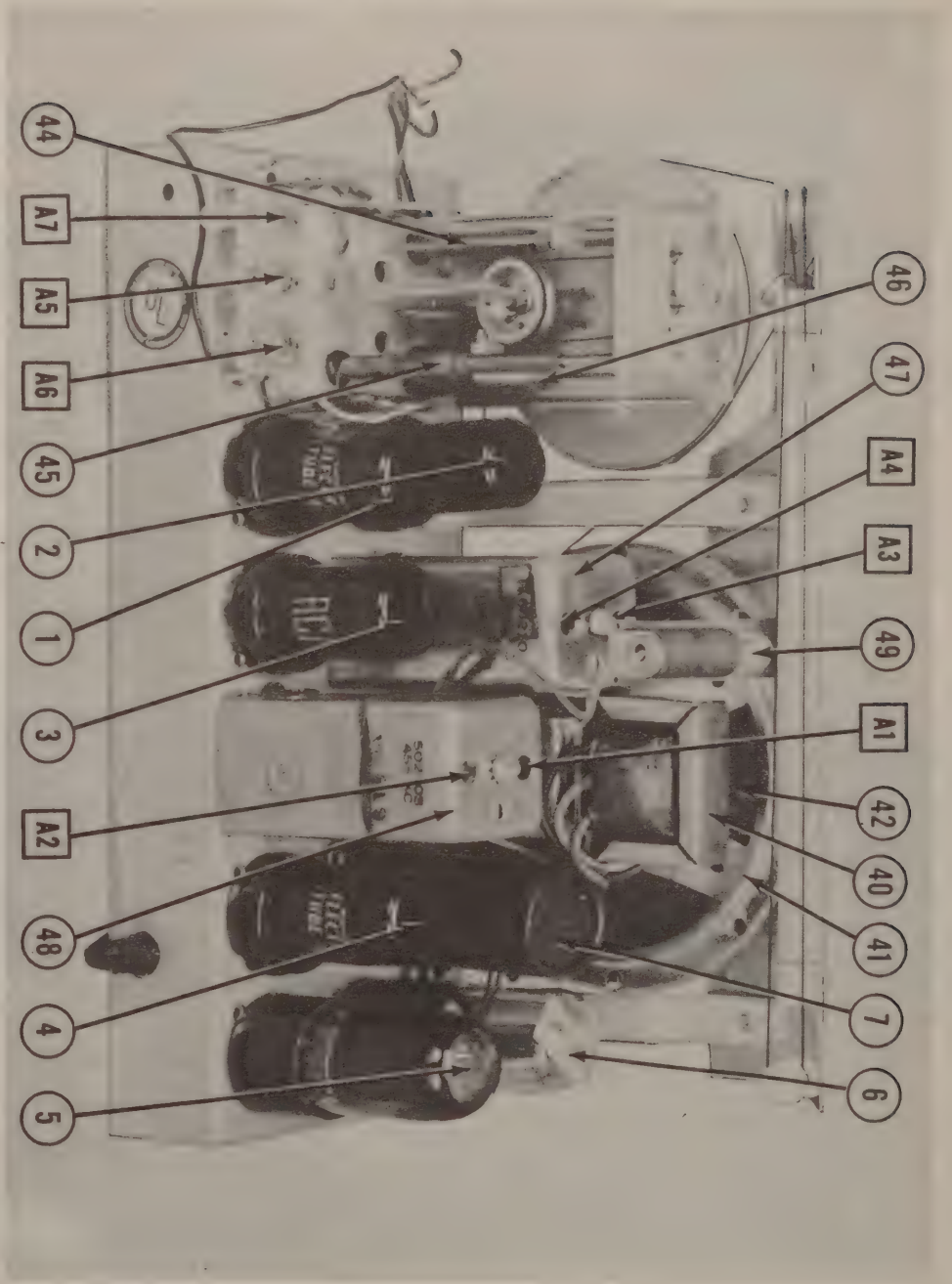
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	WOOLAROC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500KΩ	1	502145	MK401	D13-133	AM-50-Z	Volume Control
B	Shaft		Not Req.		E	KSS-3	Attach to 22A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WOOLAROC PART No.	IRC PART No.	
23	390Ω	½	502140	BW-½-390Ω	Or.-Wh.-Br. RF Cathode
24	4700Ω	½	502291	BTS-4700Ω	Yl.-Vi.-Red Plate Load
25	470KΩ	½	502134	BTS-470K	Yl.-Vi.-Yl. AVC Network
26	22KΩ	½	502130	BTS-22K	Red-Red-Or. Osc. Grid
27	47Ω	½	502264	BW-½-47Ω	Yl.-Vi.-Blk. IF Cathode
28	3.3 Meg.	½	502269	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
29	47KΩ	½	502131	BTS-47K	Yl.-Vi.-Or. Diode Load
30	10 Meg.	½	502136	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
31	2200Ω	½	502128	BTS-2200Ω	Red-Red-Red 1st AF Cathode
32	220KΩ	½	502133	BTS-220K	Red-Red-Yl. Plate Load
33	220KΩ	½	502133	BTS-220K	Red-Red-Yl. Decoupling Filter
34	2.2 Meg.	½	502135	BTS-2.2 Meg.	Red-Red-Grn. Screen Dropping
35	470KΩ	½	502134	BTS-470K	Yl.-Vi.-Yl. Output Grid
36	130Ω	½	502138	BW-½-130Ω	Br.-Or.-Br. Output Cathode
37	1500Ω	1	502469	BTA-1500Ω	Br.-Grn.-Red Filter
38	220KΩ	½	502133	BTS-220K	Red-Red-Yl. Line Isolating
39	33Ω	2	502574	BW-2-33Ω	Or.-Or.-Blk. Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WOOLAROC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
40	2710Ω	4Ω	242Ω	.8Ω	502213 502904 504244	A-3876†			Use with R-502998 " " A-502998 " " W-502998

†Additional filtering may be required.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WOOLAROC PART No.	JENSEN PART No.		
41	FIELD RES. FM	VC IMP. 3.92Ω	R-502998 A-502998 W-502998	P5-X ST-105* "		*Fabricate new mounting bracket.
42	CONE DIA. 5"	VC DIA. 1"	502214 502903 504245	Voice Coil Assembly used with R-502998 Speaker " " " " " A-502998 " " " " " " W-502998 "		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	WOOLAROC PART No.	MEISSNER PART No.	
43	Ant. Loop	0		502246		
44	Ant. Coil	1Ω	7Ω	504210		See Note #1
45	RF "	6Ω		504214		" " "
46	Osc. "	5Ω	0Ω	504212		" " "
47	Input IF	20Ω	20Ω	502102	16-5712	
48	Output IF	19Ω	19Ω	502103	16-5714	

Note 1 - Items 44, 45 and 46 are ganged and slug tuned and are obtainable as a complete tuner assembly Part No. 504096.

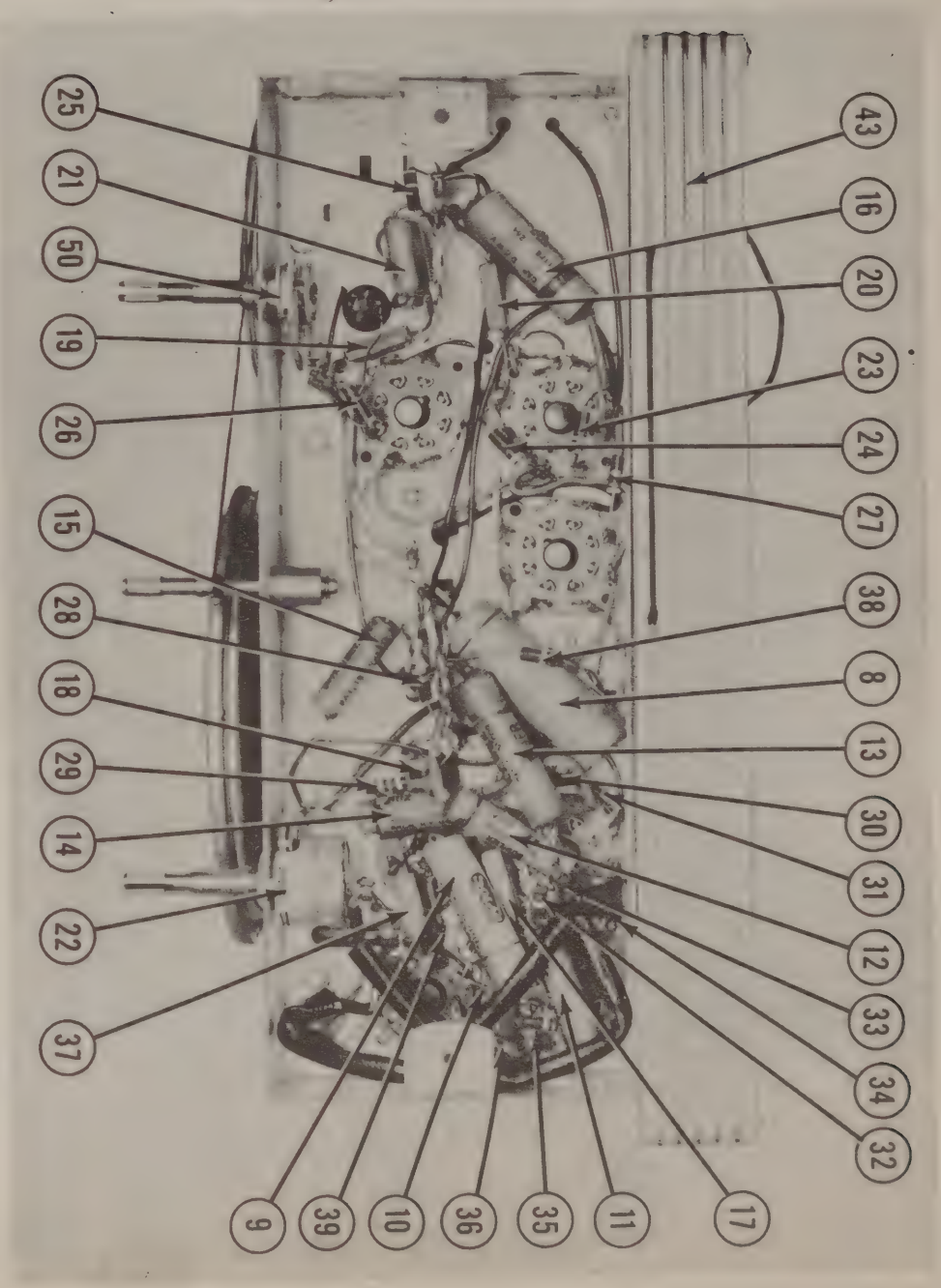
DIAL LIGHT

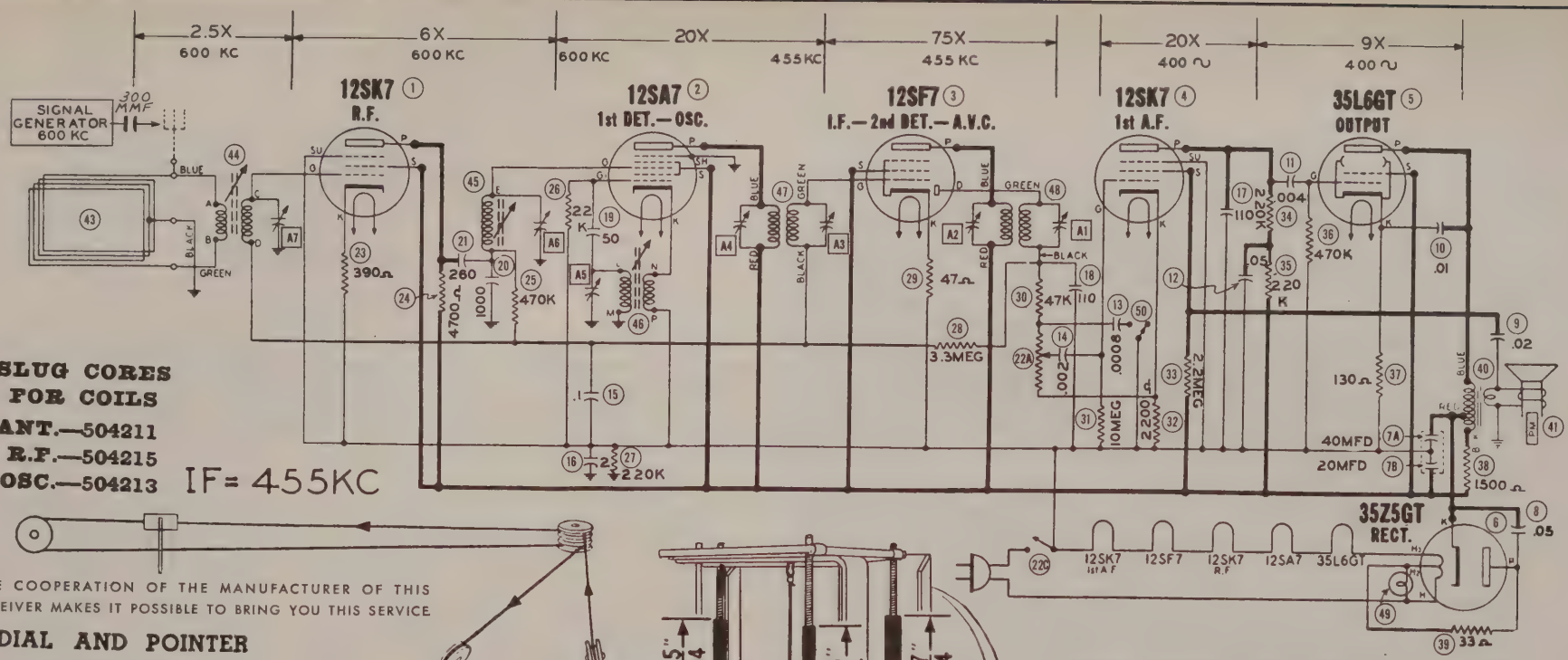
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					WOOLAROC PART No.		
49	Min. Bayonet	6-8	.15	Brown	502473		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	WOOLAROC PART No.	NOTES
50	Tone Switch	500546	Single Pole Double Throw
A5	Osc. Trimmer	504086	20 to 270 MMFD.
A6	RF Trimmer		20 to 270 MMFD.
A7	Ant Trimmer		10 to 160 MMFD.
	Cabinet	502476	Ivory (Model 3-1A)
	"	502477	Mahogany (Model 3-2A)
	Knob	502564	Ivory (Model 3-1A)
	"	502563	Mahogany (Model 3-2A)
	Dial Scale	504146	Glass
	" Pointer	502367	
	Cab. Back	502502	

CHASSIS—BOTTOM VIEW





SLUG CORES FOR COILS

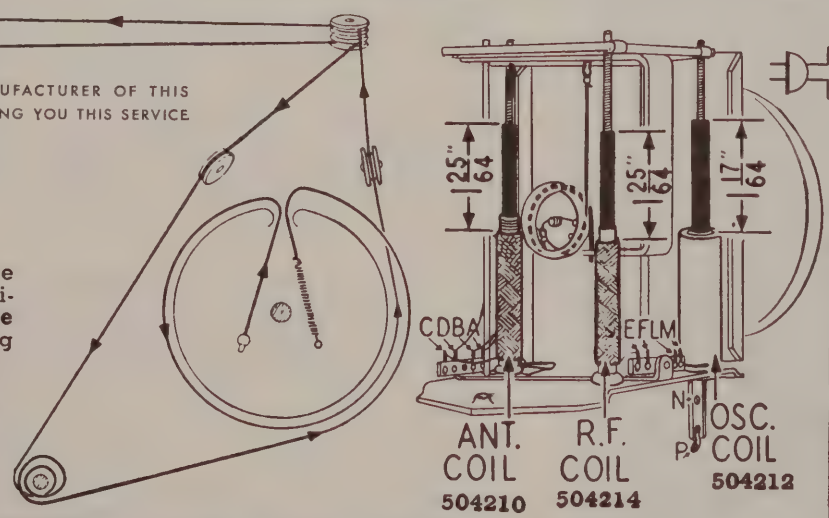
ANT.—504211
R.F.—504215
OSC.—504213

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, turn the main drive drum to maximum **counter - clockwise** position and use following parts:

114955 Clip on end of cord
117057 Cord (55 inches)
119087 Ring for dial cord
161384 Tension Spring



RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	-.02V.DC	24.5V.AC	0V.	-.02V.DC	2.6V DC	76V.DC	37V.AC	58V.DC
2	12SA7	-.02V.DC	50V.AC	76V.DC	76V. DC	-.25V.DC	0V.	37V. AC	-.1 V. DC
3	12SF7	-.02V. DC	-.02V.DC	.5V.DC	76V. DC	0V.	76V. DC	11.5V.AC	24.5V.AC
4	12SK7	-.02V.DC	0V.	0V.	.45V.DC	.27V.DC	7V. DC	11.5V.AC	35V.DC
5	35L6GT	-.02V.DC	50V.AC	112 V. DC	92V.DC	0V.	0V.	87V.AC	4.3V.DC
6	35Z5GT	0V.	117V.AC	113V.AC	117V. DC	112V.AC	0V.	87V.AC	117V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	198 K Ω	28 Ω	0 Ω	3.7MEG	375 Ω	875 K Ω	41 Ω	875K Ω
2	12SA7	198 K Ω	50 Ω	875K Ω	875K Ω	24 K Ω	.5 Ω	41 Ω	4MEG
3	12SF7	198 K Ω	4 MEG	44 Ω	875 K Ω	470 K Ω	875K Ω	12.5 Ω	28 Ω
4	12SK7	198 K Ω	0 Ω	0 Ω	7.5MEG	1.8K Ω	3.3MEG	12.5 Ω	875K Ω
5	35L6GT	198K Ω	50 Ω	875K Ω	875K Ω	450K Ω	450 Ω	80 Ω	122 Ω
6	35Z5GT	INF	108 Ω	105 Ω	875K Ω	135 Ω	0 Ω	80 Ω	875K Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. The following precautions should be observed in making stage gain measurements on this set.

1 - Use the 600KC signal with 400-cycle modulation connected as shown. (Use nearby frequency if local station interferes.)

2 - For RF and IF measurements connect negative terminal of 3-volt battery to AVC lead and positive terminal to B-. IMPORTANT-Disconnect battery when measuring audio stage gains.

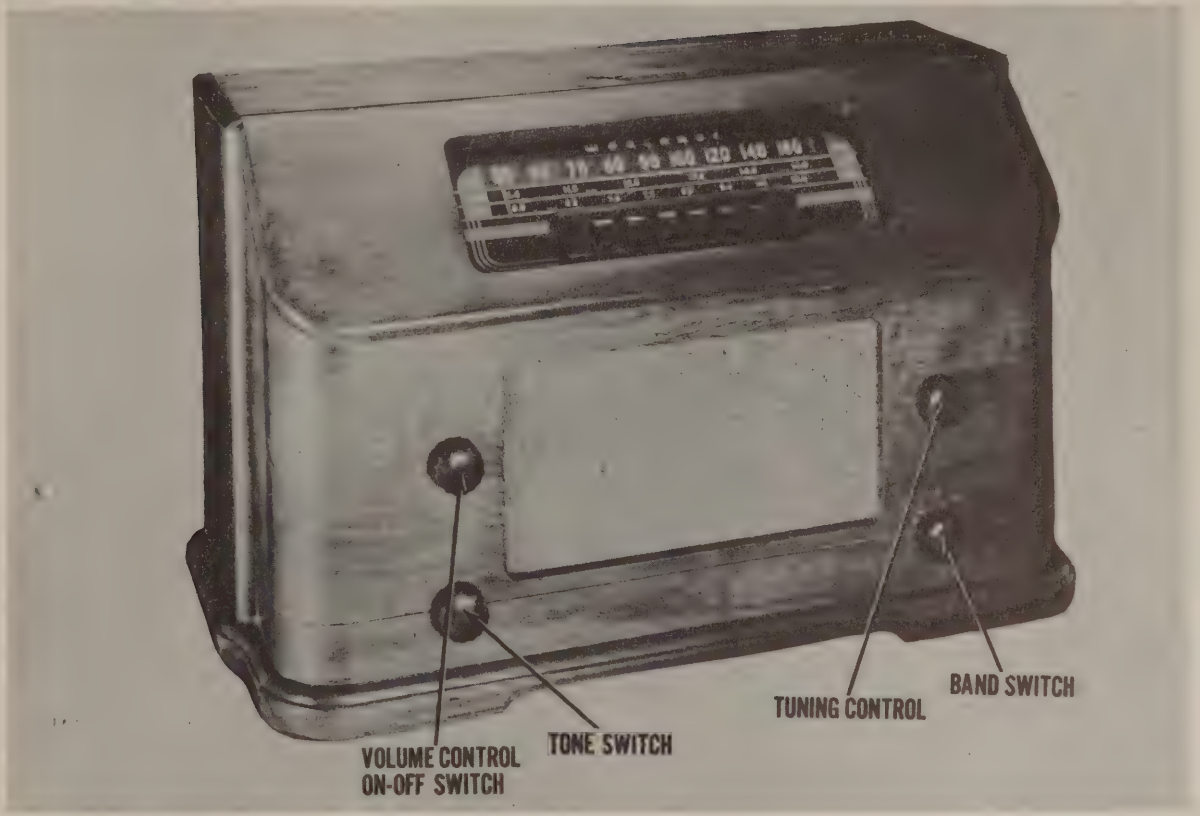
3 - Be sure receiver is carefully tuned to generator signal. (Use weak signal for sharp tuning.)

SERVICE HINT - AUDIO OSCILLATION

466-37

The audio system of this receiver utilizes a two stage type of inverse feed-back arrangement and, should it ever be necessary to replace the speaker or output transformer, it is important to maintain a definite phase relationship in the feed-back circuit. If the connections to the output transformer are reversed or if the feedback connection is made to the wrong side of the output transformer secondary, the system will become regenerative instead of degenerative. Under those conditions audio oscillation may result. If that occurs, oscillation may be prevented by reversing the connections to the secondary of the output transformer.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



WOOLAROC
MODEL 3-3A

WOOLAROC
MODEL 3-3A

WOOLAROC MODEL 3-3A

TRADE NAME Woolaroc Model 3-3A(Code 7-9003-D)
SUPPLIER Phillips Petroleum Co., Bartlesville, Okla.
TYPE SET AC 3 Band Superheterodyne - Self Contained Loop Ant. - 5 Button Automatic Tuning
TUBES (SEVEN) Types, 6SK7 RF Amp., 6SA7 1st Det.-Osc., 6SK7 IF Amp., 6SQ7 2nd Det.-AVC, 6SJ7 1st AF Amp., 6K6GT/G Power Output, 5Y3GT/G Rectifier.

POWER SUPPLY 105-125 Volts AC RATING .485Amps. @ 117V AC
TUNING RANGE—BROADCAST 540-1725KC **SHORT WAVE** 11.4-15.5MC and 5.9-10MC

ALIGNMENT INSTRUCTIONS

Adjust dial pointer over last mark to left of "55" with rotors in full mesh. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Loop and chassis in same relative position as they will be with chassis in cabinet.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #8 (signal grid) of 6SA7. Low side to chassis.	455KC	BC (counter-clockwise)	Any point of no interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output Repeat adjustments.
.003 MFD	High side to ext. ant. clip on loop frame. Low side to chassis.	1500KC	"	1500KC	"	A5	Adjust for maximum output
"	"	"	"	"	"	A6,A7,	" " " "
"	"	600KC	"	Tune to 600 KC signal.	"	A8	Rock dial and adjust for maximum output. Repeat adjustments A5, A6 and A7 at 1500KC then check A8 at 600KC.
400Ω res	"	15MC	SW	15MC	"	A9	Adjust for maximum output Check for proper peak by tuning in image at 14.1MC
"	"	"	"	"	"	A10	Rock dial slightly and adjust for maximum output
"	"	9.5MC	31M (clock-wise)	9.5MC	"	A11	Adjust for maximum output Check for proper peak by tuning in image at 8.6MC
"	"	"	"	"	"	A12	Rock dial slightly and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WOOLAROC PART No.	STANDARD REPLACEMENT		
1	RF Amplifier	6SK7	6SK7	8N	
2	1st Det.-Osc.	6SA7	6SA7	8R	
3	IF Amplifier	6SK7	6SK7	8N	
4	2nd Det.-AVC	6SQ7	6SQ7	8Q	
5	1st. AF Amp.	6SJ7	6SJ7	8N	
6	Power Output	6K6GT/G	6K6GT/G	7S	
7	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

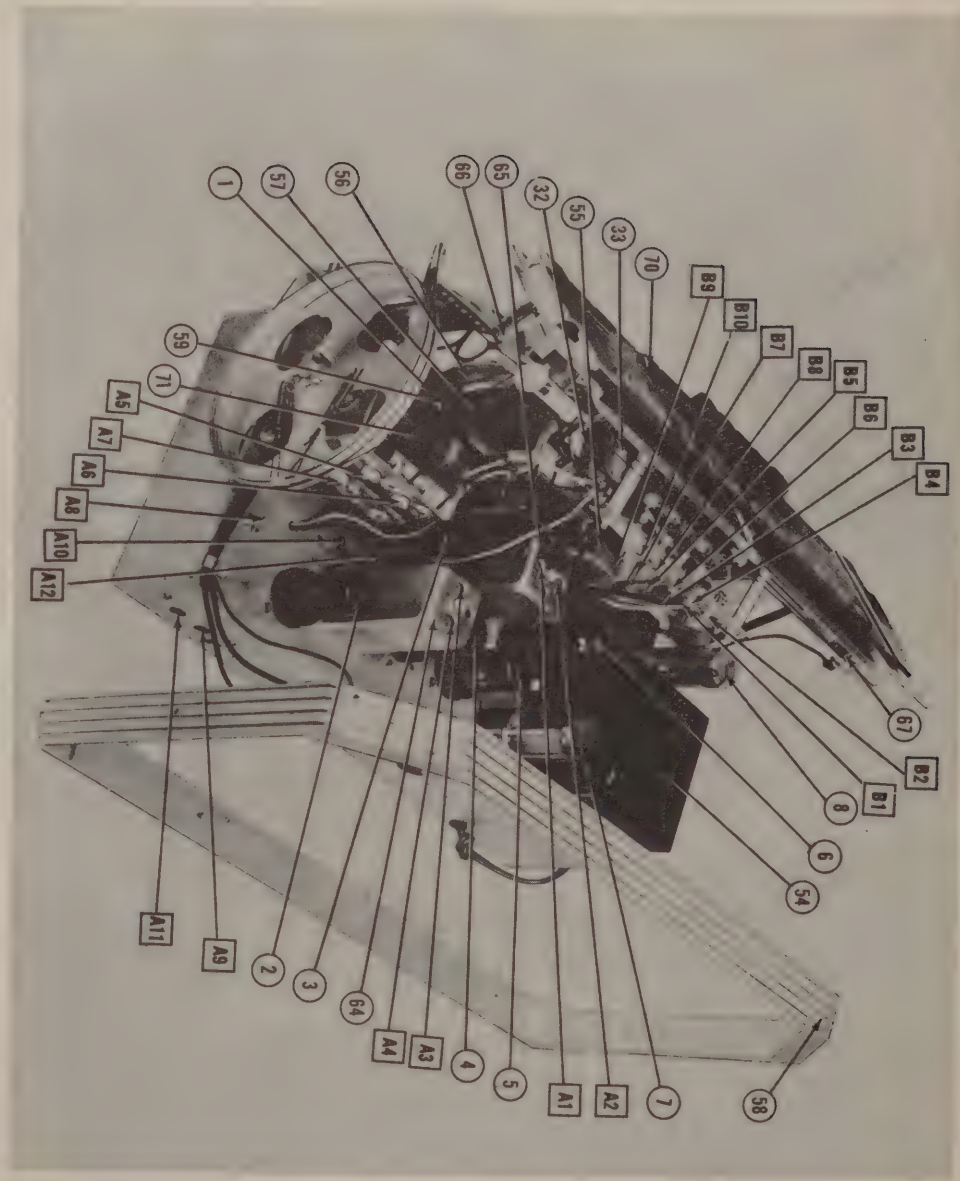
ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WOOLAROC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8(A)	20	400	502207	FP339	DY-2x20-400/20-25	EL-312	AF44J4A	UP6CJ13	■ Filter
(B)	10	400							▲ "
(C)	20	25							
9	.05	600	502154	TP415	S-6-05	TC-15	684-.05	DT6S5	Tone Compensation
10	.004	600	502150	TP407	S-6-004	TC-24	684-.004	DT6D4	6K6 Plate Bypass
11	.02	400	502152	TP423	S-4-02	TC-12	484-.02	DT4S2	Audio Coupling
12	.1	400	502410	TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Plate Decoup.
13	.25	400	502405	TP430	S-4-25	TC-2	484-.25	DT4P25	Negative Feedback
14	.004	600	502150	TP407	S-6-004	TC-24	684-.004	DT6D4	Audio Coupling
15	.05	400	502157	TP426	S-4-05	TC-15	484-.05	DT4S5	RF Bypass Pwr. Supp.
16	.05	400	502157	TP426	S-4-05	TC-15	484-.05	DT4S5	IF Screen Bypass
17	.01	400	502151	TP421	S-4-01	TC-11	484-.01	DT4S1	Osc. Feedback SW
18	.05	400	502157	TP426	S-4-05	TC-15	484-.05	DT4S5	RF Screen Bypass
19	.1	200	502155	TP428	S-4-1	TC-1	484-.1	DT4P1	AVC Filter
20	.05	200	502153	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter*
21	110	500	502160	MC235	MO.5-31	1FM-31	1468-.0001	5W5T1	Audio Plate Bypass
22	260	500	502271	MC240	MO.5-325	1FM-325	1468-.00025	5W5T25	RF Bypass Diode
23	68	500	502167	MC230		MS-47	1469-.00007	5W5Q7	Osc. Coupling SW
24	430	500	502163	MCB243	MOS.5-34	MS-34	1469-.0004	5R5T4	RF Coupling SW
25	39	500	502182	MC223	MO.5-44	1FM-44	1468-.00004	5W5Q4	Fixed Trimmer
26	2	500	502411						RF Coupling SW
27	50	500	502159	MC225	MO.5-45	1FM-45	1468-.00005	5W5Q5	Osc. Grid Cond.
28	10	500	502295	MC215	MO.5-41	MS-41	1468-.000001		RF Trans. Fixed Tuned
29	39	500	502182	MC223	MO.5-44	1FM-44	1468-.00004	5W5Q4	Fixed Trimmer
30	82	500	502166						Fixed Padder SW
31	670	500	502164						" " "
32	270	500	502161	MCB240	MOS.5-325	1FM-325	1469-.00025	5R5T25	Fixed Tuning Osc. P.B.
33	1000	500	502165	MC255	MO.3-21	1FM-21	1468-.001	1W5D1	Screen Bypass P.B.

*Used in Some Models Only.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	WOOLAROC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
34(A)	500KΩ	1	502117	MK401	D13-133	AM-60-Z	Volume Control.
(B)	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 33A per instructions
(C)	Switch		" "	M26	41	SW-A	" " " " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WOOLAROC PART No.	IRC PART No.	
36	4.7 Meg.	½	502468	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st Grid
38	560Ω	½	502127	BTS-560	Grn.-Blue-Br. RF Cathode
37	1.00KΩ	½	502132	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
39	2.2KΩ	½	502150	BTS-22K	Red-Red-Or. Osc. Grid
39	33KΩ	1	502466	BTA-33K	Or.-Or.-Or. Osc. Screen Dropping
40	220Ω	½	502125	BW-½-220	Red-Red-Br. IF Cathode
41	2.2 Meg.	½	502135	BTS-2.2 Meg	Red-Red-Grn. AVC Network
42	68KΩ	½	502467	BTS-68K	Blue-Gray-Or. IF Screen Dropping
43	47KΩ	½	502131	BTS-47K	Yl.-Vi.-Or. Diode Load
44	4.7 Meg.	½	502468	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
45	2200Ω	½	502128	BTS-2200	Red-Red-Red 1st AF Cathode
46	220KΩ	½	502133	BTS-220K	Red-Red-Yl. 1st AF Plate Load
47	100KΩ	½	502132	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Filter
48	2.2 Meg.	½	502135	BTS-2.2 Meg	Red-Red-Grn. 1st AF Screen Dropping
49	470KΩ	½	502134	BTS-470K	Yl.-Vi.-Yl. Output Grid
50	330Ω	2	502137	BW-2-330	Or.-Or.-Br. Fixed Bias
51	4700Ω	½	502541	BTS-4700	Yl.-Vi.-Red Tone Compensation
52	560Ω	½	502127	BTS-560	Grn.-Blue-Br. " "
53	470KΩ	½	502134	BTS-470K	Yl.-Vi.-Yl. AVC Network*

*Used in Some Models Only

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	WOOLAROC PART No.	STANCOR PART No.	THORDARSON PART No.	
54	117V. @ .485A	300V.CT @ .058A	5V. @ 1.82A	6.2V @ 2.0ΣA	502174	P-6120	T-13R20	Replacement Parts P-6120 and T-13R20 require new mounting holes.

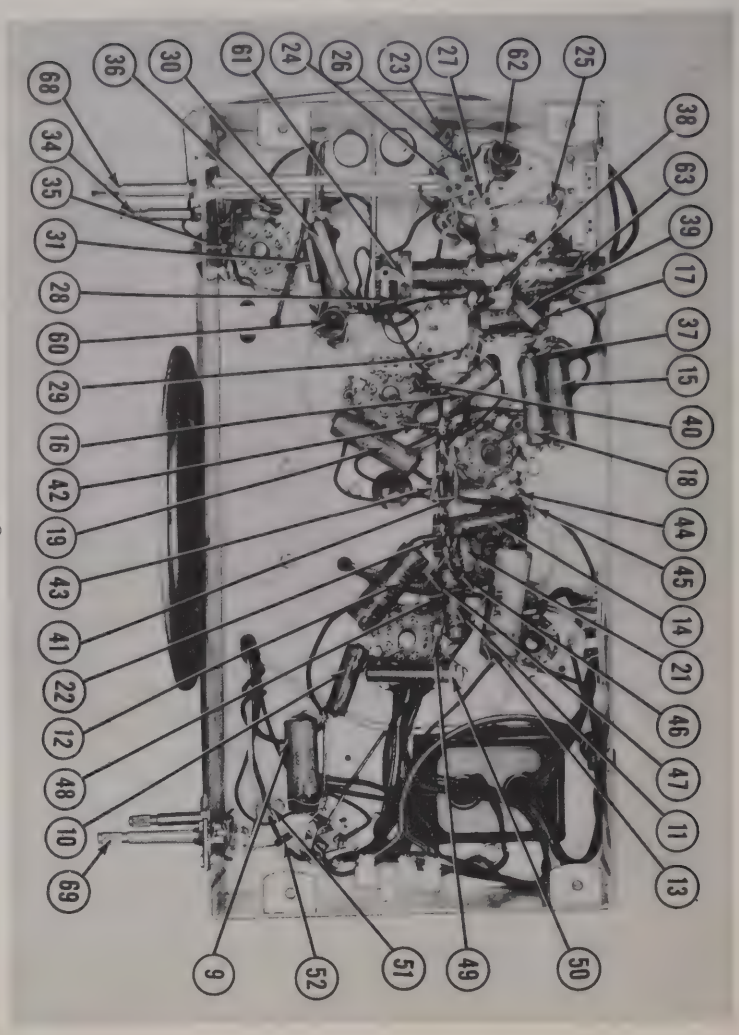
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WOOLAROC PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
55	8433Ω	3.6Ω	665Ω	.6Ω	504124	A 3878	T-22547		Used with speaker D-504205
55A					504208				Used with speaker R-504205
55B					504206				Used with speaker M-504205

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WOOLAROC PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.		ST-431		
56	1000Ω	3.5Ω	D504205	Mod H6-S††		††Improvise mounting bracket.
	CONE DIA.	VC DIA.				
57	6-3/16"	9/16"	504125	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		
56(A)			M-504205			
57(A)			504207			
56(B)			R-504205			
57(B)			504209			

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	WOOLAROC PART No.	MEISSNER PART No.	
58	Loop Ant.	0Ω	0Ω	502186		
59	BC Ant. Coil	.5Ω	3Ω	502112	14-1027	
60	SW Ant. Coil	.5Ω	0Ω	502110	14-1044	
61	BC RF Coil	110Ω	0Ω	502113	14-1027	
62	BC Osc. Coil		5Ω	502114		Adjustable Iron Core Slug
63	SW Osc. Coil	.5Ω	0Ω	502111	14-1046	
64	Input IF	20Ω	20Ω	502102	16-6658	
65	Output IF	19Ω	19Ω	502103	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					WOOLAROC PART No.		
66	Bayonet	6-8	0.25	Blue	110629		Type 44
67	"	"	"	"	"		"

MISCELLANEOUS

ITEM No.	PART NAME	WOOLAROC PART No.	NOTES
68	Band Switch	502119	
69	Tone Switch	502118	
70	Switch	502120	Push Button Auto. Tuning
71	Tuning Cap.	502122	3 Gang Variable Cap.
A9	Trimmer	502108	SW Oscillator 2-15MMF
A11	"	Part of 502108	31 Meter Oscillator 2-15 MMF
A10	"	502109	SW Antenna 2-15 MMF
A12	"	Part of 502109	31 Meter Antenna 10-40 MMF
	Dial Scale	502561	Glass
	Escutcheon	502699	Push Button
	Knob	501449	Volume & Tuning
	"	501458	Tone & Band Switch
	Push Button	501495	Automatic Tuning

PUSHBUTTON ADJUSTMENTS

The pushbuttons from left to right (facing front of receiver) cover the following frequency ranges: 540 to 1000KC, 650 to 1300KC, 650 to 1300KC, 975 to 1600KC, 975 to 1600KC. To adjust the pushbuttons to desired stations, proceed as follows:

1 - Set band switch on "AM" position and turn set on to allow for warm-up period.

2 - Select a station which falls in the frequency range of the pushbutton on the extreme left and adjustments B1, B2 (540-1000KC).

3 - Push in "Manual" button and tune in the station to identify program.

4 - Push in button on extreme left and adjust B1 to tune in station (adjust for deepest tone). Adjust B2 for maximum volume of station.

5 - Proceed in the same manner for setting up the remaining pushbuttons, always selecting a station within the frequency range of the pushbutton and its associated adjustments. Adjust B3, B5, B7, and B9 to tune in station. Adjust B4, B6, B8 and B10 for maximum volume.

VOLTAGE & RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	6.25V.AC	0V.	-.02V.DC	3.4V.DC	87V.DC	0V.	237V.DC
2	6SA7	0V.	0V.	237V.DC	52V.DC	-1.75V.DC	0V.	6.25V.AC	-.06V.DC
3	6SK7	0V.	0V.	0V.	-.07V.DC	2.2V.DC	85V.DC	6.25V.AC	237V.DC
4	6SQ7	0V.	0V.	0V.	-.35V.DC	-.35V.DC	0V.	6.25V.AC	0V.
5	6SJ7	0V.	0V.	1.15V.DC	0V.	1.15V.DC	22V.DC	6.25V.AC	115V.DC
6	6K6GT	0V.	0V.	220V.DC	237V.DC	-7.2V.DC	-18V.DC	6.25V.AC	0V.
7	5Y3GT	0V.	295V.DC	0V.	310V.AC	0V.	310V.AC	0V.	295V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	.25Ω	0Ω	1.7MEG	540Ω	3.7MEG	0Ω	3.6MEG
2	6SA7	0Ω	0Ω	3.6MEG	3.65MEG	21.5KΩ	.5Ω	.25Ω	1.5MEG
3	6SK7	0Ω	0Ω	0Ω	1.6MEG	205Ω	3.7MEG	.25Ω	3.6MEG
4	6SQ7	0Ω	0Ω	0Ω	540KΩ	540KΩ	0Ω	.25Ω	0Ω
5	6SJ7	0Ω	0Ω	2.2KΩ	3.75MEG	2.2KΩ	5.8MEG	.25Ω	3.9MEG
6	6K6GT	0Ω	0Ω	3.6MEG	3.6MEG	420KΩ	318Ω	.25Ω	0Ω
7	5Y3GT	INF	36MEG	INF	530Ω	INF	525Ω	.5Ω	3.6MEG

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.

2 - Socket connections are shown as bottom views.

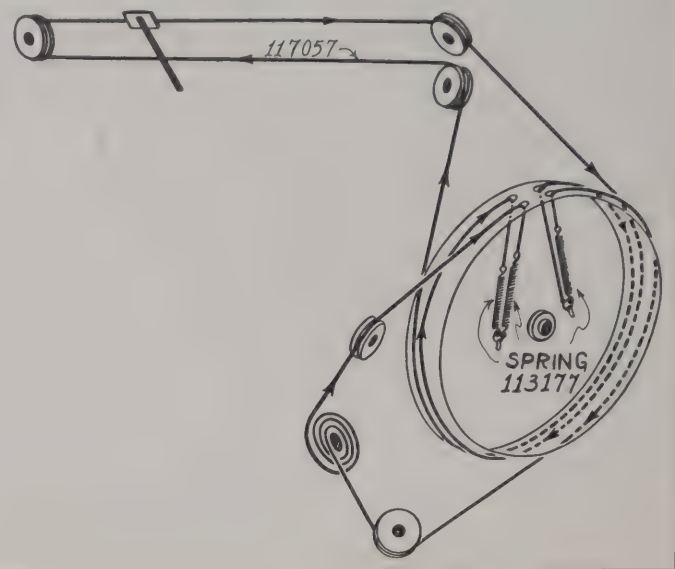
3 - Measured values are from socket pin to common negative.

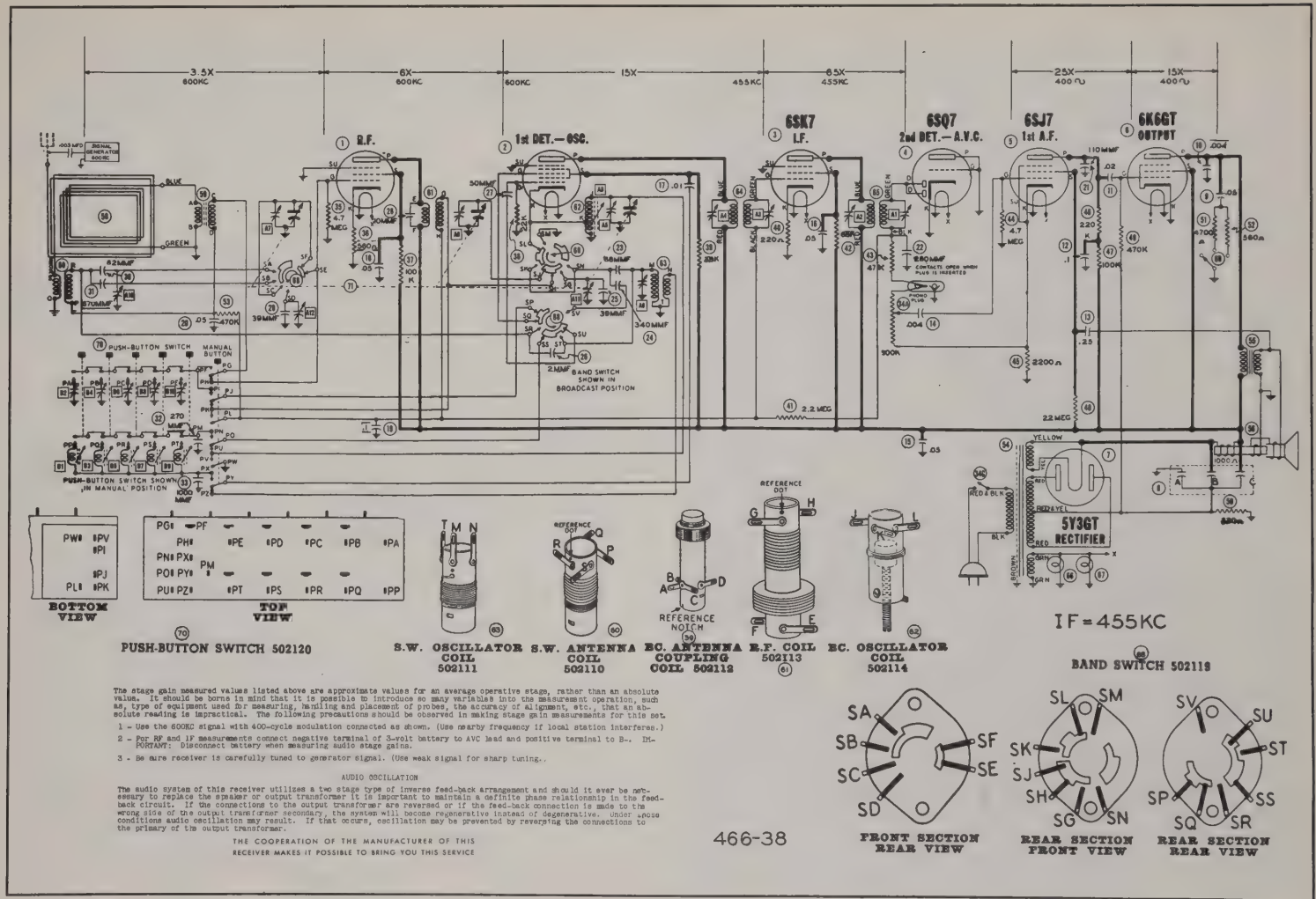
4 - Line voltage maintained at 117 volts for voltage readings.

5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.

6 - Volume control at maximum, no signal applied for voltage measurements.

DIAL CORD DRIVE





The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. The following precautions should be observed in making stage gain measurements for this set.

1 - Use the 600KC signal with 400-cycle modulation connected as shown. (Use nearby frequency if local station interferes.)

2 - For RF and IF measurements connect negative terminal of 3-volt battery to AVC lead and positive terminal to B-. IMPORTANT: Disconnect battery when measuring audio stage gains.

3 - Be sure receiver is carefully tuned to generator signal. (Use weak signal for sharp tuning.)

AUDIO OSCILLATION

The audio system of this receiver utilizes a two stage type of inverse feed-back arrangement and should it ever be necessary to replace the speaker or output transformer it is important to maintain a definite phase relationship in the feed-back circuit. If the connections to the output transformer are reversed or if the feed-back connection is made to the wrong side of the output transformer secondary, the system will become regenerative instead of degenerative. Under those conditions audio oscillation may result. If that occurs, oscillation may be prevented by reversing the connections to the primary of the output transformer.

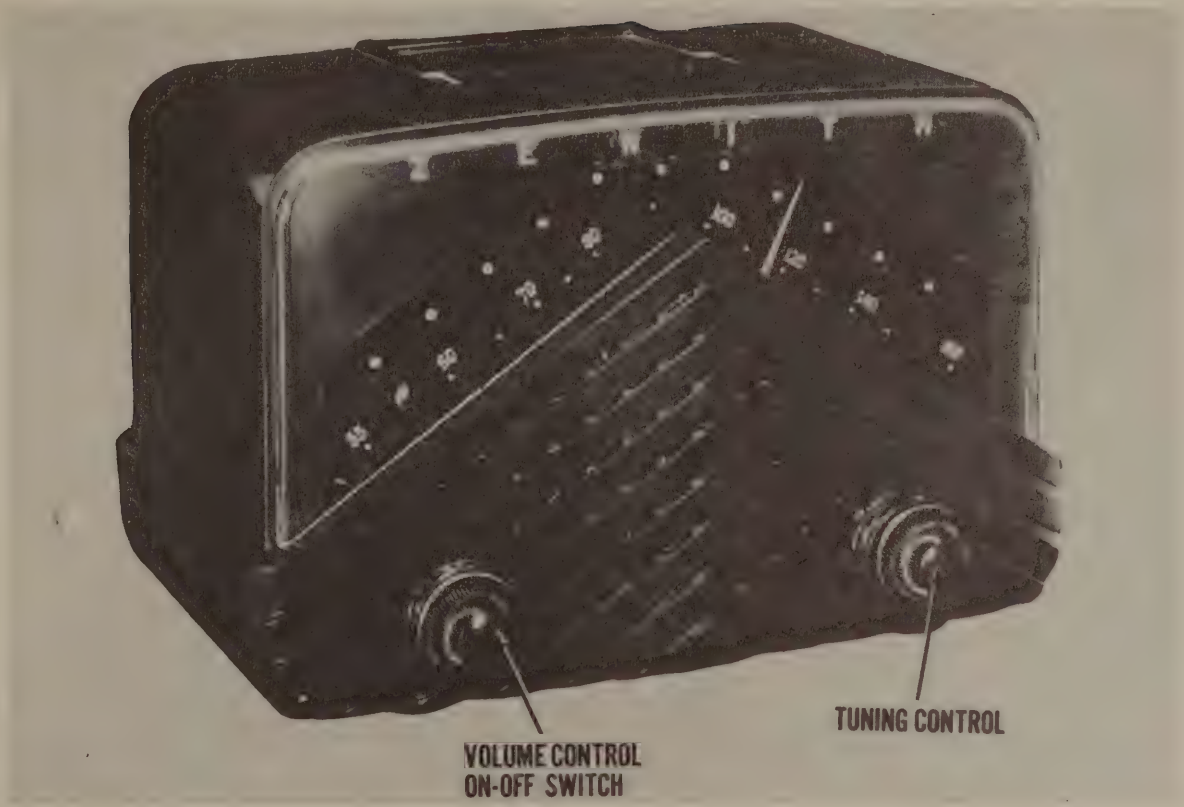
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

466-38

FRONT SECTION REAR VIEW

REAR SECTION FRONT VIEW

REAR SECTION REAR VIEW



ZENITH
MODEL 4K016

ZENITH
MODEL 4K016

ZENITH MODEL 4K016

TRADE NAME	Zenith Model 4K016 (Chassis 4C52)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-Amp., 1C5GT Power Output.
POWER SUPPLY	1½ Volt "A" Battery & 90 Volt "B" Battery-Zenith Battery Pack No. Z-28 or equivalent
TUNING RANGE—BROADCAST	535-1620KC RATING - 275 MA @ 1.5 Volt DC & 10 MA @ 90 Volt DC

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.5 MFD.	High side to grid cap. of 1A7. Low side to chassis.	455KC	600KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF.	High side to ant. lead. Low side to ground lead.	1600KC	1600KC	"	A5	" " " "
"	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		EIA BASE TYPE	INSTALLATION NOTES
		ZENITH PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-Amp.	1H5GT	1H5GT	5Z	
4	Power Output	1C5GT	1C5GT	6X	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	ZENITH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5	8	150	22-684	TC42	M-8-150	UT-81	PRS150-8	BR815	Pwr. Supp. Bypass
6	.004	600	22-448	TP407	S-6-004	TC-24	684-004	DT6D4	1C5 Plate Bypass
7	.01	600	22-196	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
8	.01	600	22-196	TP410	S-6-01	TC-11	684-01	DT6S1	" "
9	.05	200	22-829	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Plate Decoup.
10	.05	200	22-829	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
11	.05	200	22-829	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	100	600	22-162	MC235	M0.5-31	1FM-31	1468-0001	5W6T1	Audio Plate Bypass
13	100	600	22-162-	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Bypass Vol. Cont.
14	100	600	22-162	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	1 Meg.	1	63-1351	MK402*	D13-137*	AM-63-Z*	Volume control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 15A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

*Use original bushing to actuate on-off indicator.

RESISTORS

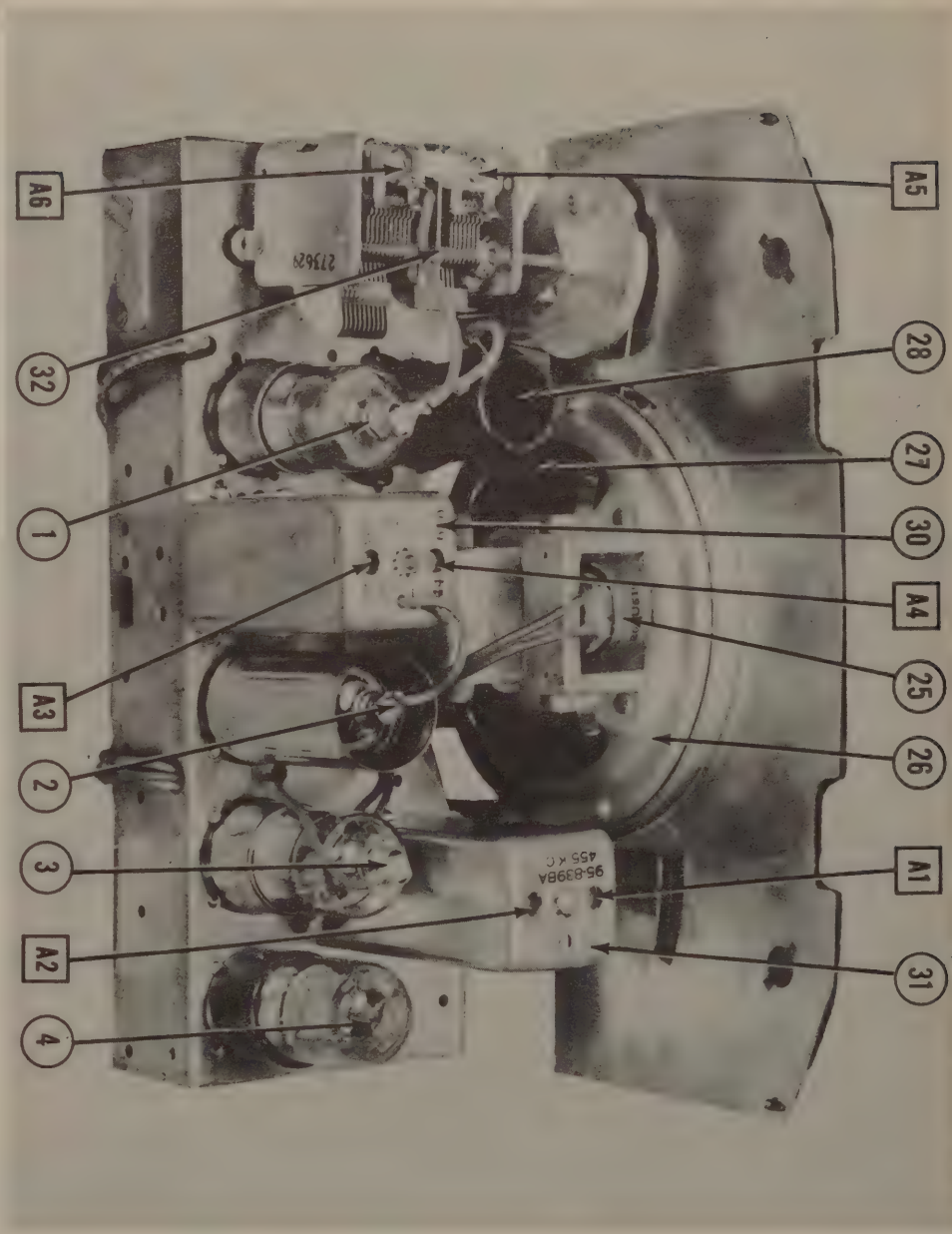
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	
16	180KΩ	½	63-654	BTS-180K	Br.-Gray-Yl. Osc. Grid
17	68KΩ	½	63-594	BTS-68K	Blue-Gray-Or. Converter Screen Dropping
18	3.9 Meg.	½	63-669	BTS-3.9 Meg	Or.-White-Grn. AVC Network
19	4700Ω	½	63-587	BTS-4700	Yl.-Vi.-Red Series Volume Control
20	15 Meg.	½	63-976	BTS-15 Meg.	Br.-Grn.-Blue 1st AF Grid
21	1 Meg.	½	63-271	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
22	2.2 Meg.	½	63-600	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
23	820Ω	½	63-634	BTS-820	Gray-Red-Br. Bias
24	1000Ω	½		BTS-1000	Br.-Blk.-Red Converter Decoupling-See Note 1

Note 1-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
25	6500Ω	3.3Ω	460Ω	.35Ω	Part of 49-519	A-3878	T-14S81		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS

SPEAKER

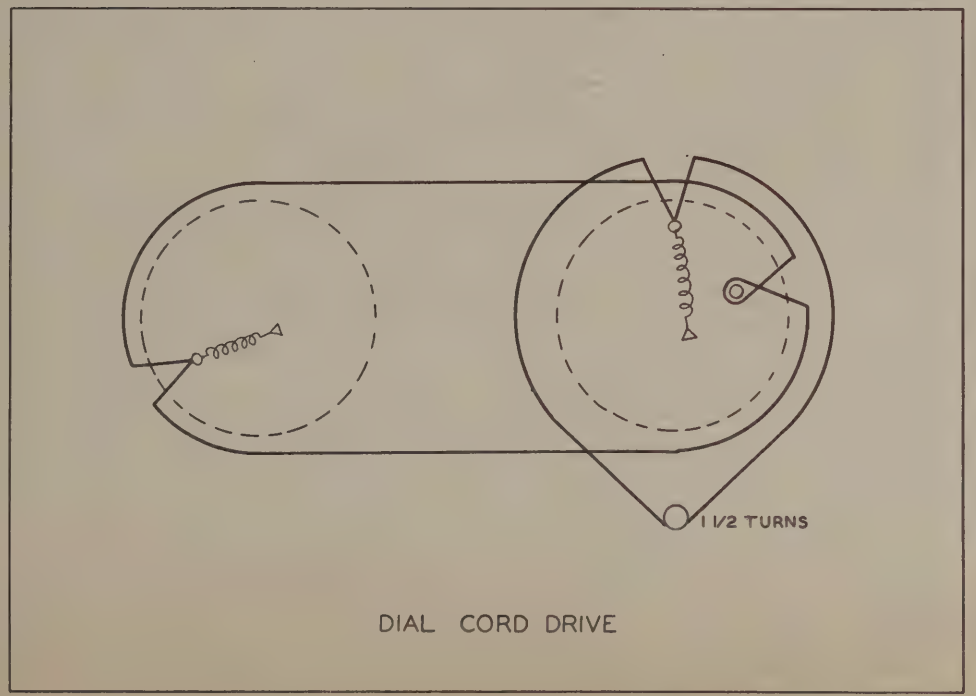
ITEM No.	RATINGS		REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107		
26	PM	3.3Ω	49-519	Mod. P5-V		
	CONE DIA.	VC DIA.				
27	4-3/4"	11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
28	Ant. Coil	22Ω	4.8Ω	S12024		
29	Osc. "	3Ω	6.8Ω	S12014	14-1040	
30	Input IF	22Ω	21Ω	95-814	16-6658	
31	Output IF	22Ω	22Ω	95-839	16-6660	

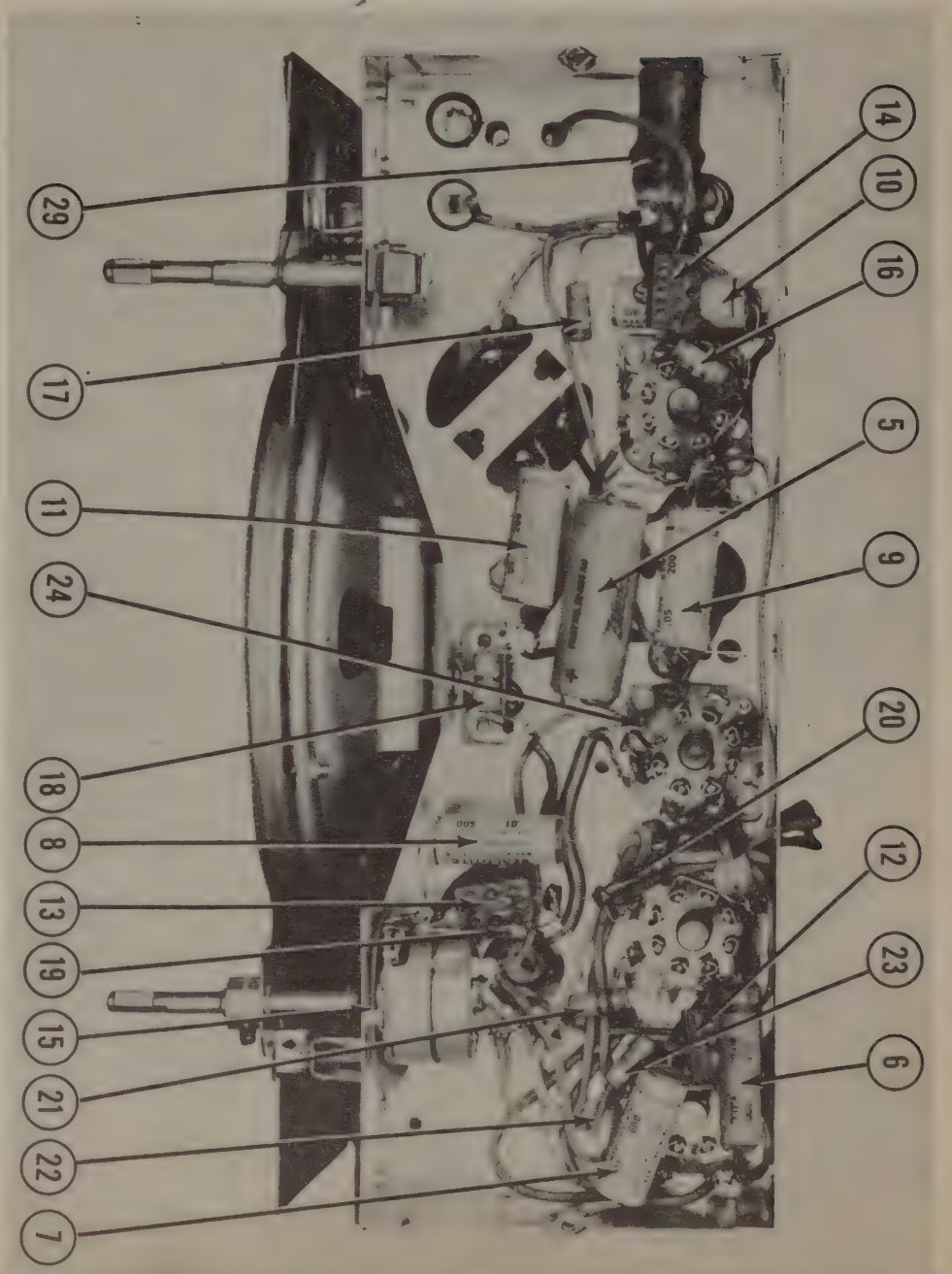
MISCELLANEOUS

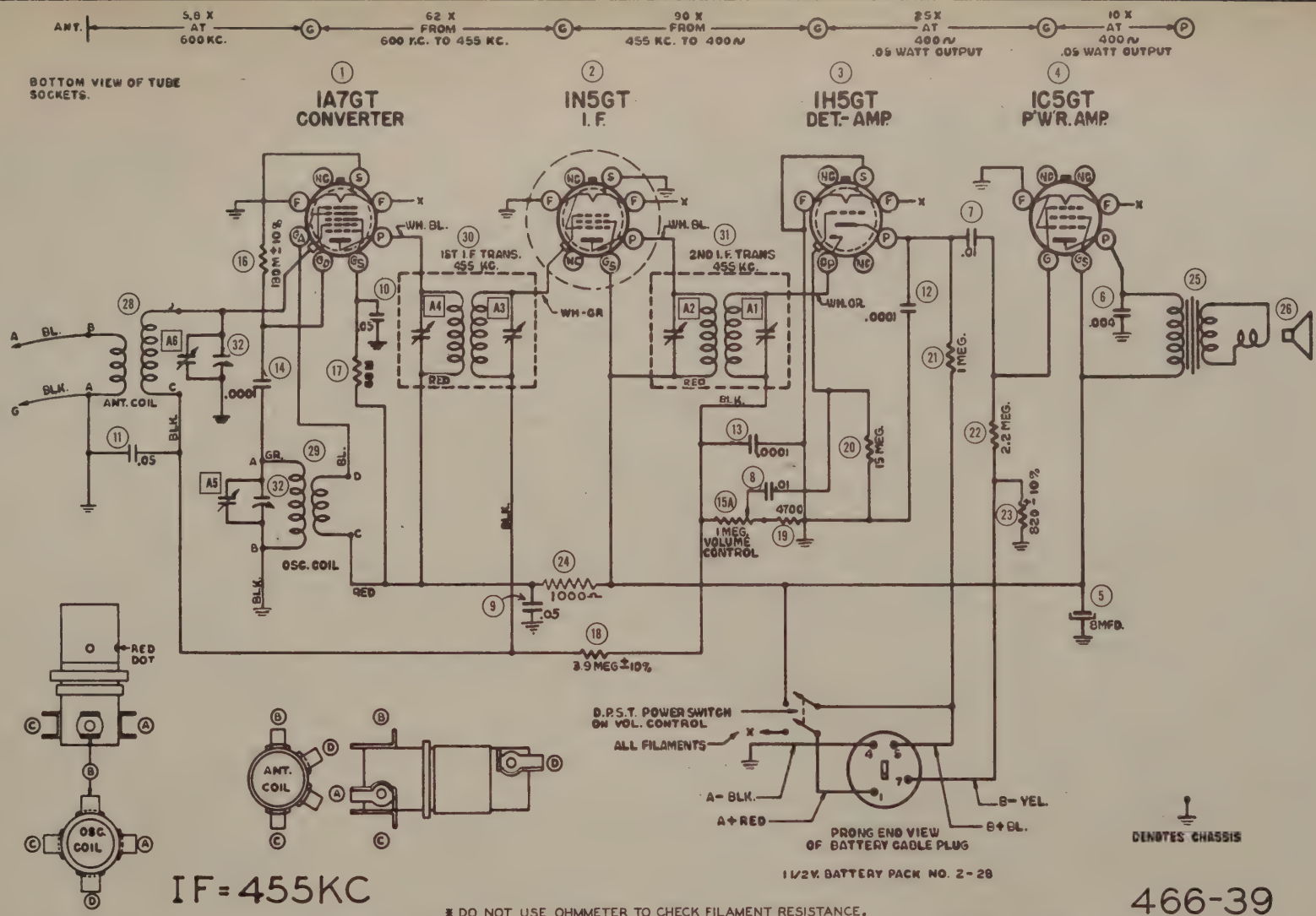
ITEM No.	PART NAME	ZENITH PART No.	NOTES
32	Tuning Cap.	22-1454	2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW




ANT.
5.8 X AT 600 KC.
62 X FROM 600 KC. TO 455 KC.
90 X FROM 455 KC. TO 400 ~
25 X AT 400 ~ .05 WATT OUTPUT
10 X AT 400 ~ .05 WATT OUTPUT
BOTTOM VIEW OF TUBE SOCKETS.
1 1A7GT CONVERTER
2 1N5GT I. F.
3 1H5GT DET.- AMP.
4 1C5GT P'W'R. AMP.
1ST I.F. TRANS. 455 KC.
2ND I.F. TRANS 455 KC.
ANT. COIL
OSC. COIL
1 MEG. VOLUME CONTROL
D.P.S.T. POWER SWITCH ON VOL. CONTROL
ALL FILAMENTS
A- BLK.
A+ RED
B- YEL.
B+ BL.
PRONG END VIEW OF BATTERY CADLE PLUG
1 1/2 V. BATTERY PACK NO. 2-28
DENOTES CHASSIS
IF=455KC

466-39

* DO NOT USE OHMMETER TO CHECK FILAMENT RESISTANCE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	1.6V. DC	83V. DC	42V. DC	-.95V. DC	83V. DC	0V	0V	0V
2	1N5GT	0V.	1.6V. DC	86V. DC	86V. DC	83V. DC	0V	0V	0V	0V
3	1H5GT	0V.	1.6V. DC	55V. DC	0V	-.2V. DC	0V	0V	0V	0V
4	1C5GT	0V.	1.6V. DC	83V. DC	86V. DC	1.6V. DC	-8.2V. DC	0V	0V	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0 Ω	*	170K Ω	240K Ω	180K Ω	170K Ω	*	INF	4.5MEG
2	1N5GT	0 Ω	*	170K Ω	170K Ω	170K Ω	INF	*	INF	4.5MEG
3	1H5GT	0 Ω	*	1.2MEG	INF	950K Ω	13MEG	*	INF	13MEG
4	1C5GT	0 Ω	*	170K Ω	170K Ω	1.7MEG	760 Ω	*	INF	

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

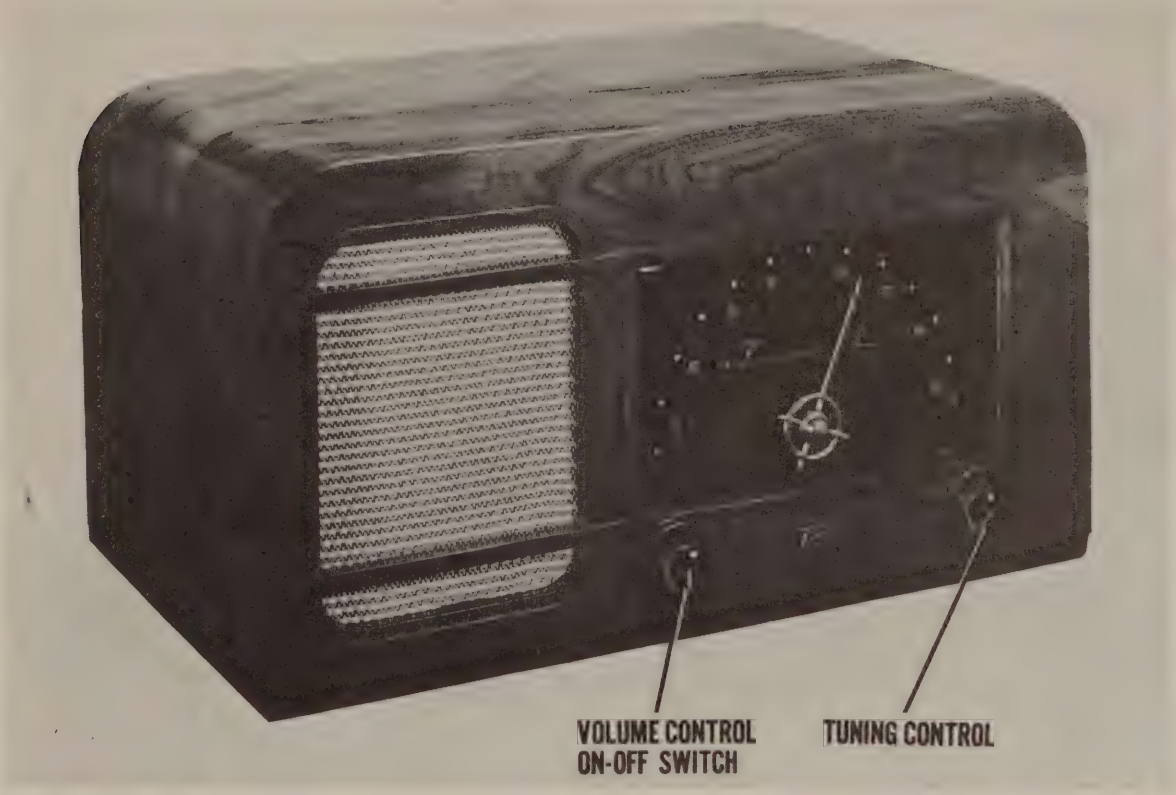
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

DC Voltage measurements are at 20,000 ohms per volt.

Socket connections are shown as bottom views.
Measured values are from socket pin to common negative.

Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
Volume control at maximum, no signal applied for voltage measurements.

ZENITH
MODEL 4K035



ZENITH
MODEL 4K035

ZENITH MODEL 4K035

TRADE NAME	Zenith Model 4K035 (Chassis 4C53)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-Amp., 1C5GT Power Output.
POWER SUPPLY	1½ Volt "A" Battery & 90 Volt "B" Battery-Zenith Battery Pack No.Z-28 or equivalent.
TUNING RANGE—BROADCAST	535-1620KC RATING - 275 MA @ 1½ Volt DC & 10MA @ 90 volt DC

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.5 MFD.	High side to grid cap. of 1A7. Low side to chassis.	455KC	600KC	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF.	High side to ant. lead. Low side to ground lead.	1600KC	1600KC	"	A5	" " " "
200 MMF.	"	1400KC	Tune to maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-Amp.	1H5GT	1H5GT	5Z	
4	Power Output	1C5GT	1C5GT	6X	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	8	150	22-684	TC42	M-8-150	UT-81	PRS150-8	BR815	Pwr. Supp. Bypass
6	.004	600	22-448	TP407	S-6-004	TC-24	684-004	DT6D4	1C5 Plate Bypass
7	.01	600	22-196	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
8	.01	600	22-196	TP410	S-6-01	TC-11	684-01	DT6S1	" "
9	.05	200	22-829	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Plate Decoup.
10	.05	200	22-829	TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
11	.05	200	22-829	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	100	600	22-162	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
13	100	600	22-162	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	RF Bypass Vol. Cont.
14	100	600	22-162	MC235	M0.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	1 Meg.	1	63-1235	MK402*	D13-137*	AM-63-Z*	*Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 15A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

*Use original bushing to actuate on-off indicator.

RESISTORS

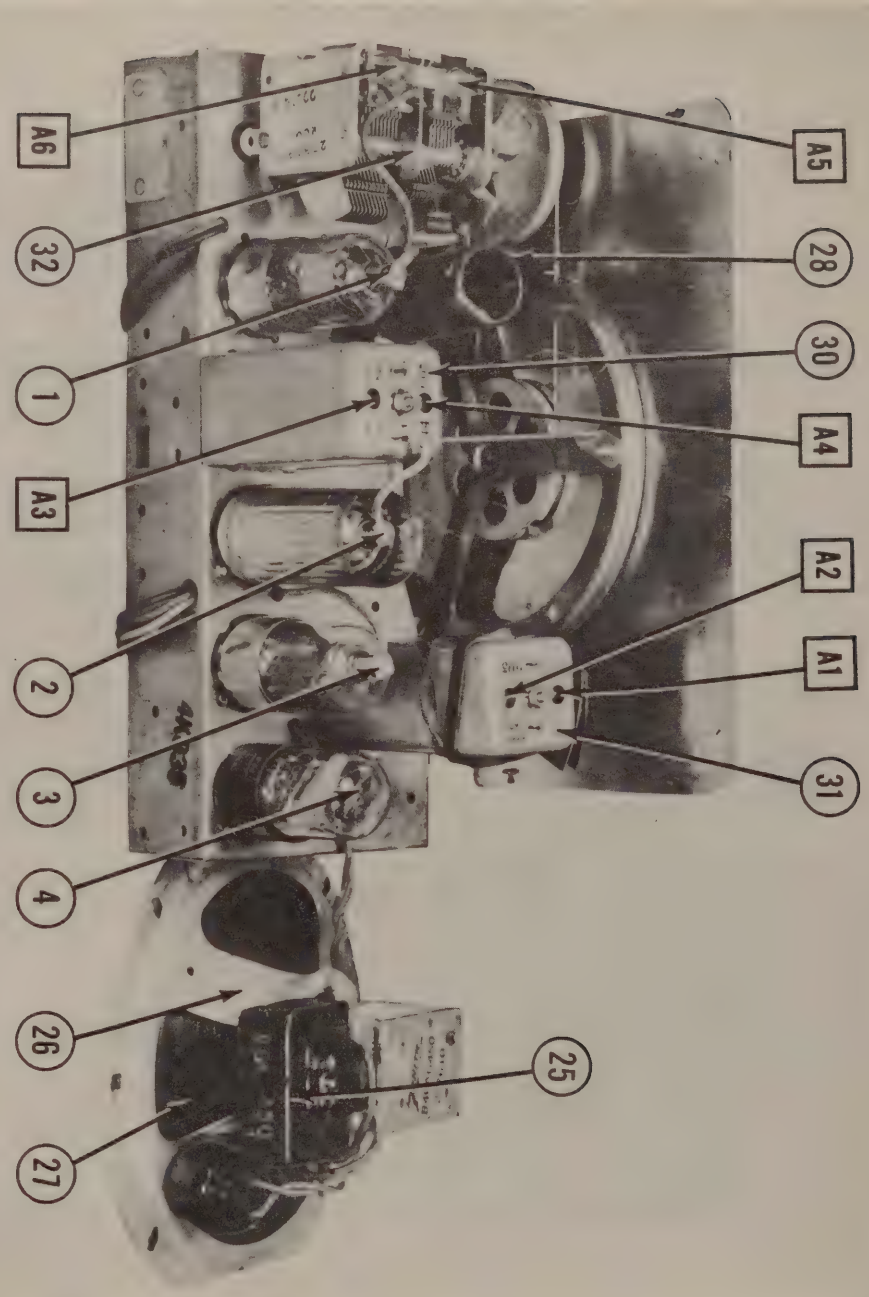
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
16	180KΩ	½	63-654	BTS-180K	Br.-Gray-Yl. Osc. Grid
17	68KΩ	½	63-594	BTS-68K	blue-Gray-Or. Converter Screen Dropping
18	3.9 Meg.	½	63-669	BTS-3.9 Meg	Or.-White-Grn. AVC Network
19	4700Ω	½	63-587	BTS-4700	Yl.-Vi.-Red Series Volume Control
20	15 Meg.	½	63-976	BTS-15 Meg.	Br.-Grn.-Blue 1st AF Grid
21	1 Meg.	½	63-271	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
22	2.2 Meg.	½	63-600	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
23	820Ω	½	63-634	BTS-820	Gray-Red-Br. Bias
24	1000Ω	½		BTS-1000	Br.-Blk.-Red Converter Decoupling-See Note 1

Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
25	11000Ω	4.25Ω	720Ω	.45Ω	Part of 49-450	A-3831	T-22547‡		‡Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS

SPEAKER

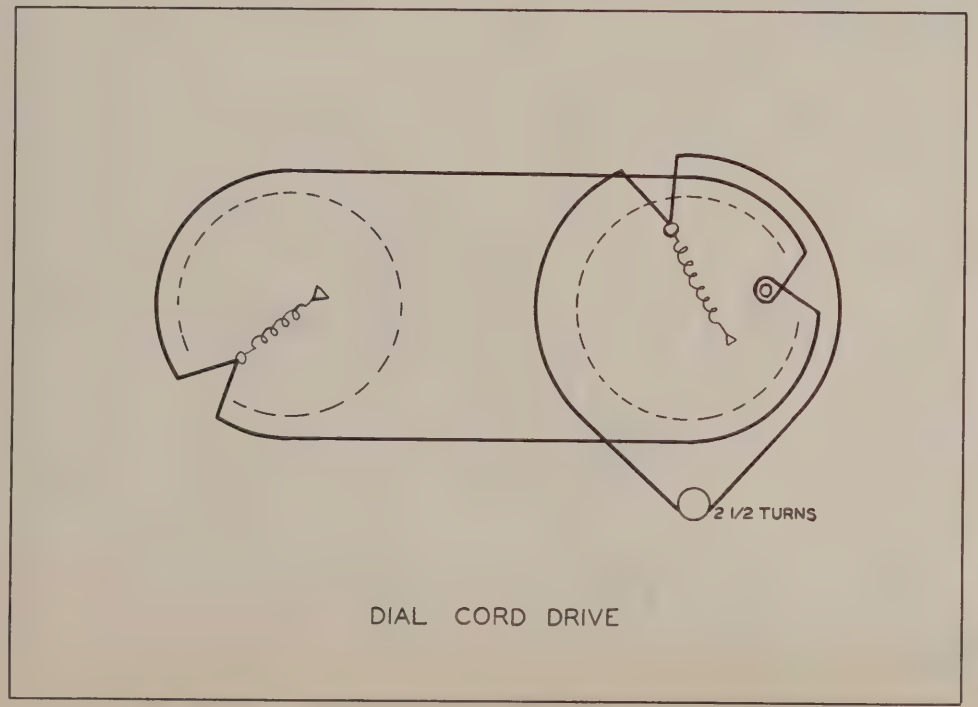
ITEM No.	RATINGS		REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.		INSTALLATION NOTES
26	FIELD PM	VC IMP. 4.25Ω	49-450	ST-110 Mod. P6-V		
27	CONE DIA. 5-15/16"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
28	Ant. Coil	22Ω	4.8Ω	S12024		
29	Osc. Coil	3Ω	6.8Ω	S12014	14-1040	
30	Input IF	22Ω	21Ω	95-814	16-6658	
31	Output IF	22Ω	22Ω	95-839	16-6660	

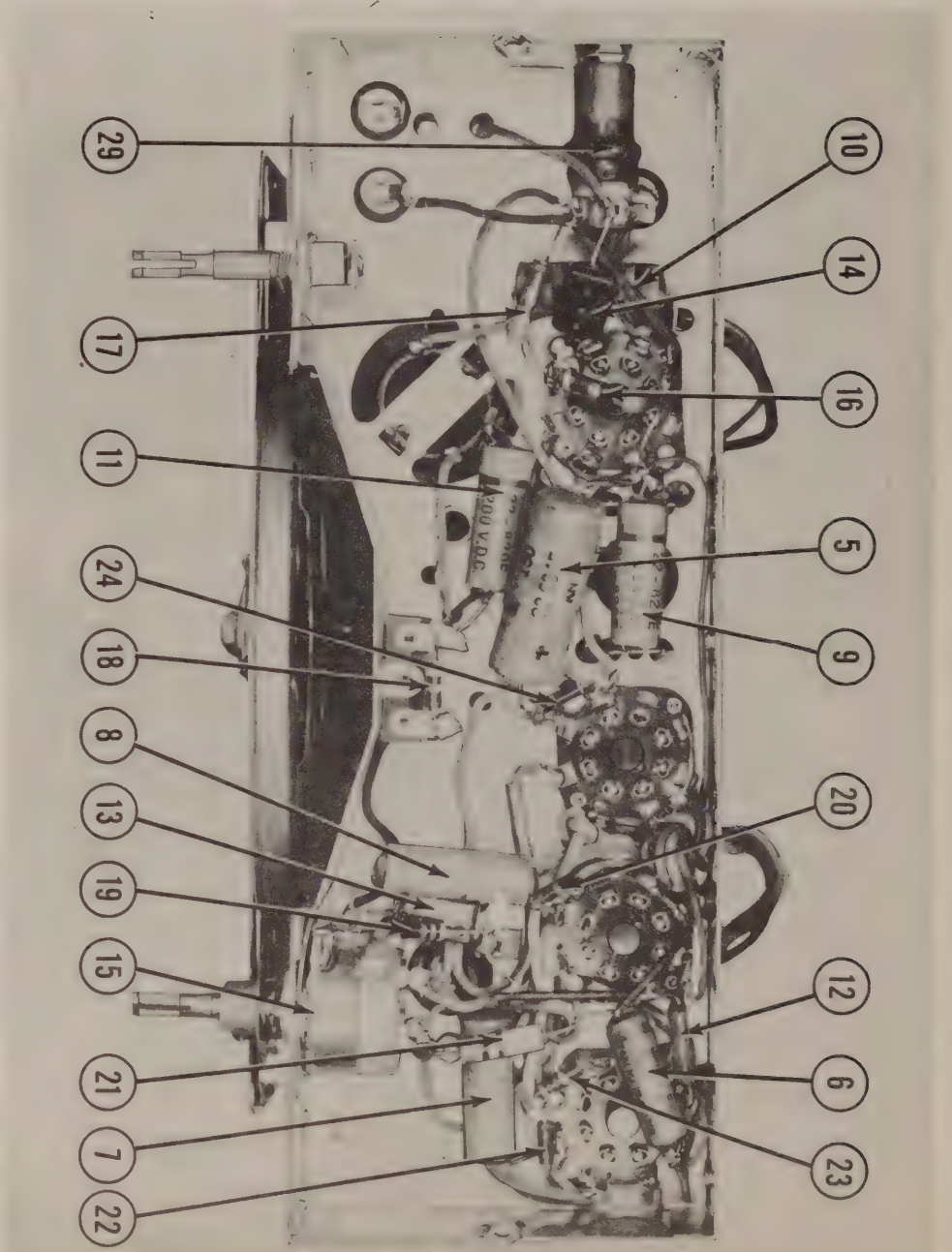
MISCELLANEOUS

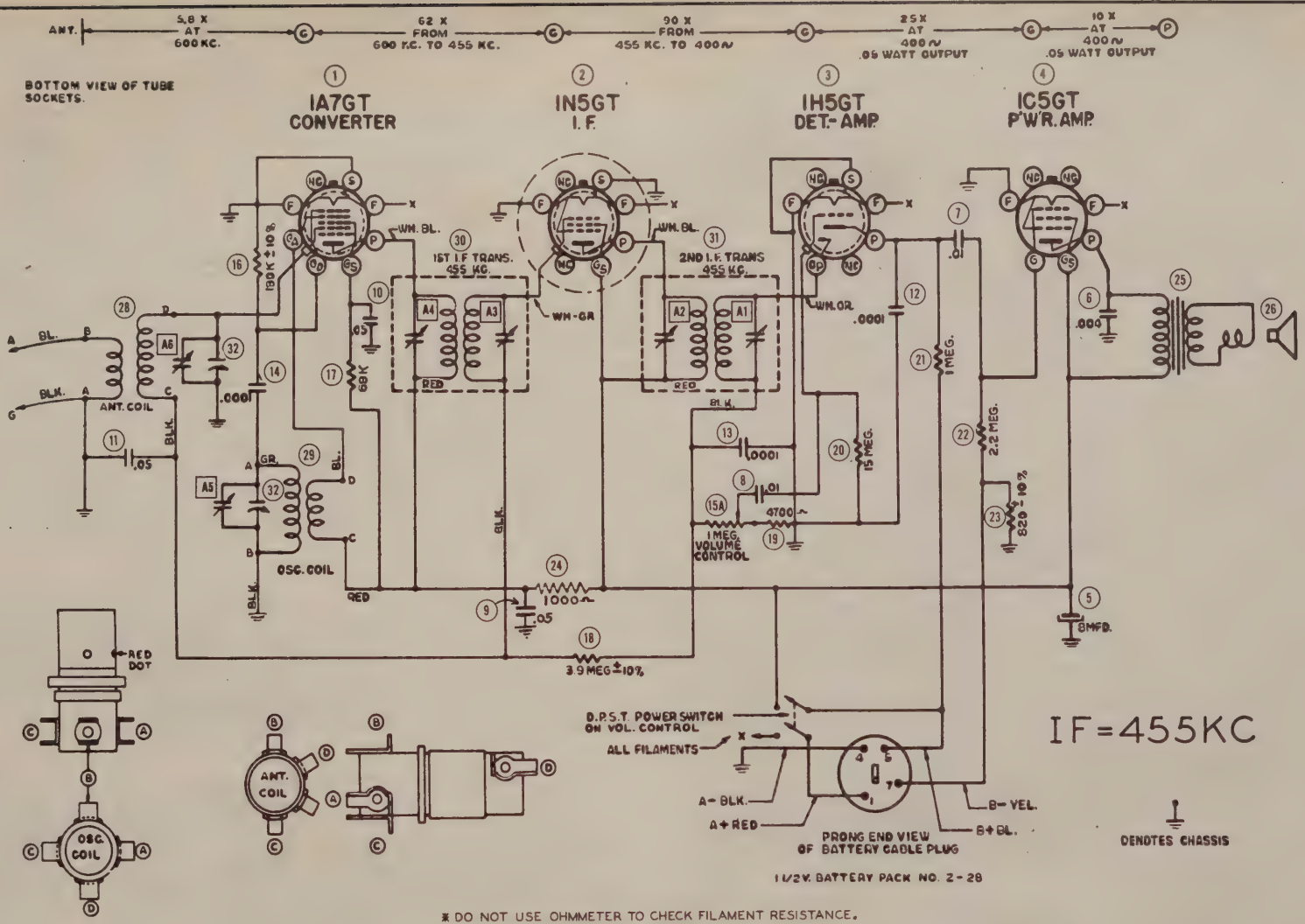
ITEM No.	PART NAME	ZENITH PART No.	NOTES
32	Tuning Cap.	22-1453	2 Gang Variable Cap.



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





* DO NOT USE OHMMETER TO CHECK FILAMENT RESISTANCE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	1.6V.DC	83V.DC	42V.DC	-.95V.DC	83V.DC	0V	0V	0V
2	1N5GT	0V.	1.6V.DC	86V.DC	86V.DC	83V.DC	0V	0V	0V	0V
3	1H5GT	0V.	1.6V.DC	55V.DC	0V	-.2V.DC	0V	0V	0V	0V
4	1C5GT	0V.	1.6V.DC	83V.DC	86V.DC	1.6V.DC	-8.2V.DC	0V	0V	

RESISTANCE READINGS

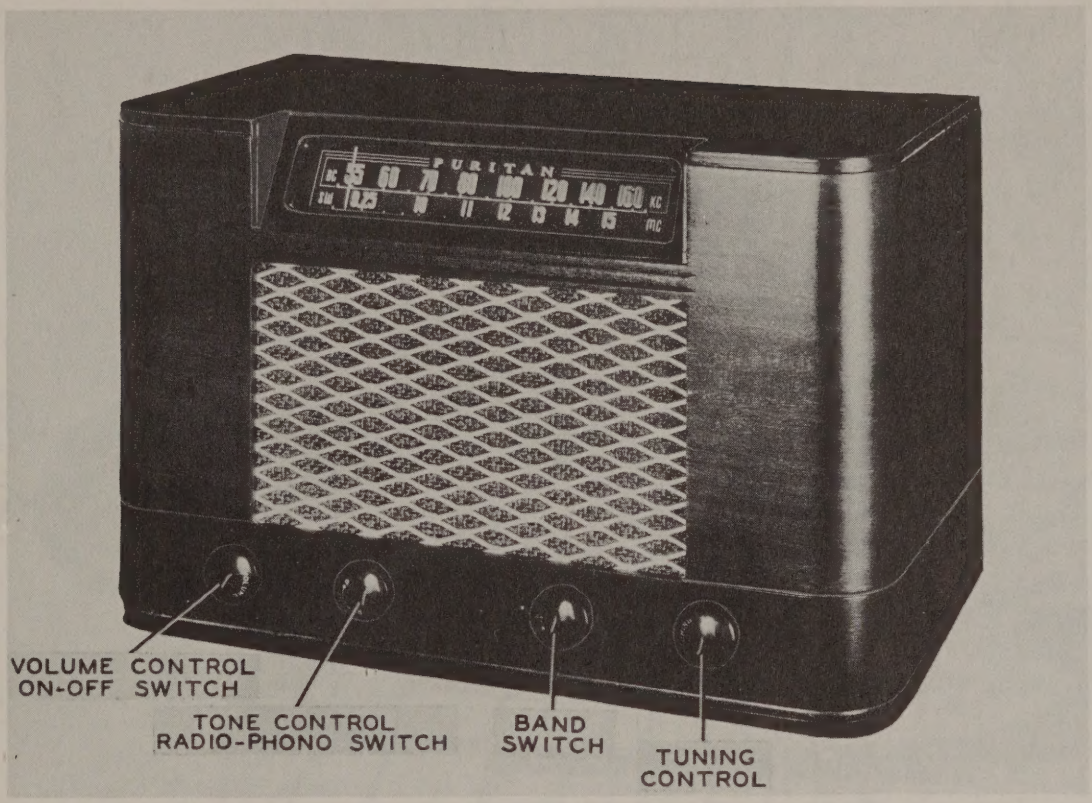
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0Ω	*	170KΩ	240KΩ	180KΩ	170KΩ	*	INF	4.5MEG
2	1N5GT	0Ω	*	170KΩ	170KΩ	170KΩ	INF	*	INF	4.5MEG
3	1H5GT	0Ω	*	1.2MEG	INF	950KΩ	13MEG	*	INF	13MEG
4	1C5GT	0Ω	*	170KΩ	170KΩ	1.7MEG	760Ω	*	INF	

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

466-40

1. DC Voltage measurements are at 20,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.



PURITAN
MODEL 504

PURITAN
MODEL 504

PURITAN MODEL 504

TRADE NAME	Puritan Model 504 (Chassis 6A35WG)
MANUFACTURER	Pure Oil Co., 35 Wacker Drive, Chicago, Illinois
TYPE SET	AC Operated 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SA7 Mixer, 6SK7 1st IF Amp., 6SF7 2nd IF-Det.-AVC, 6SJ7 1st AF Amp., 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	117 Volts AC — RATING .370 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC — SHORT WAVE 9-15.5MC

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #8 (grid 6SA7. Low side to chassis.)	455KC	BC B Range	Turn rotor to full open	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
100 MMFD	High side to ant. lead. Low side to chassis.	1620KC	"	"	"	A5	" " " "
"	"	1400KC	"	Tune in 1400 KC signal. Set pointer to 1400KC.	"	A6	" " " "
"	"	600KC	"	Tune in 600 KC signal.	"	A7	Rock rotor and adjust for maximum output. Repeat adjustments A5 at 1600KC and A7 at 600KC until no further improvement can be obtained by adjusting A5.
400Ω res.	"	15.6MC	SW D Range	Turn rotor to full open	"	A8	Adjust for maximum output.
"	"	14MC	"	Tune in 14 MC signal.	"	A9	Rock rotor and adjust for maximum output.
100 MMFD	"	1400KC	BC B Range	Tune in 1400 KC signal.	"	A6	Reassemble chassis in cabinet and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PURITAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mixer	6SA7	6SA7	8R	
2	1st IF	6SK7	6SK7	8N	
3	2nd IF-Det.-AVC	6SF7	6SF7	7AZ	
4	1st AF	6SJ7	6SJ7	8N	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	450	45X346	FP346	DY-2x40-450/20-25	EL-330		UP9DJ53	● Filter
B	40	450							■ "
C	20	25							▲ Cath. Bypass
8	.004	400	D66402	TP407	S-6-004	TC-24	484-.004	DT6D4	6V6 Plate Bypass
9	.01	400	D66103	TP421	S-4-01	TC-11	484-.01	DT4S1	Audio Coupling
10	.004	400	D66402	TP407	S-6-004	TC-24	484-.004	DT6D4	Tone Compensation
11	.025	400	D64253	TP451			484-.025	DT4S25	Audio Plate Decoup.
12	.1	400	D66104	TP428	S-4-1	TC-1	484-.1	DT4P1	Audio Screen Bypass
13	.005	400	D66502	TP408	S-6-005	TC-25	484-.005	DT6D5	Audio Coupling
14	.04	400	D66403	TP425	S-6-04	TC-14	484-.04	DT4S4	Tone Compensation
15	.04	400	D66403	TP425	S-6-04	TC-14	484-.04	DT4S4	Screen Bypass
16	.05	200	B66503	TP426	S-4-05	TC-15	484-.05	DT4S5	AVC Filter
17	.04	400	D66403	TP425	S-6-04	TC-14	484-.04	DT4S4	6SA7 Screen Bypass
18	.0005	200	B66501	TP403	S-6-0005	TC-35	1468-.0005	DT6T5	RF Coupling
19	330	500	47X470	MC241	M0.5-33	1FM-335	1468-.0003	5W5T3	Audio Plate Bypass
20	47	500	47X463	MC225	M0.5-45	1FM-45	1468_.00005	5W5Q5	Tone Compensation
21	68	500	47X471			MS-47	1469-.00007	5W5Q7	IF Filter Diode
22	100	500	47X476	MC235	M0.5-31	1FM-31	1468-.0001	5W5T1	" " "
23	47	500	47X463	MC225	M0.5-45	1FM-45	1468-.00005	5W5Q5	IF Coupling
24	68	500	47X466			MS-47	1469-.00007	5W5Q7	Osc. Grid Capacitor
25	286	500	47X481						Fixed Padder
26	40	500	47X472	MCB223	M0S.5-44	MS-44	1469-.00004	5R5Q4	Fixed Trimmer
27	360	500	47X474						Fixed Padder
28	47	500	47X473	MCb225	M0S.5-45	MS-45	1469-.00005	5R5Q5	Fixed Trimmer
29	270	500	47X445	MC241	M0.5-33	MS-33	1468-.0003	5W5T3	Loop Pri. Shunt
64	.2	400	D67204	TP429	S-4-2	TC-2	484-.2	5W5P2	RF Bypass Pwr. Supp.*

* Used in series B models

CONTROLS

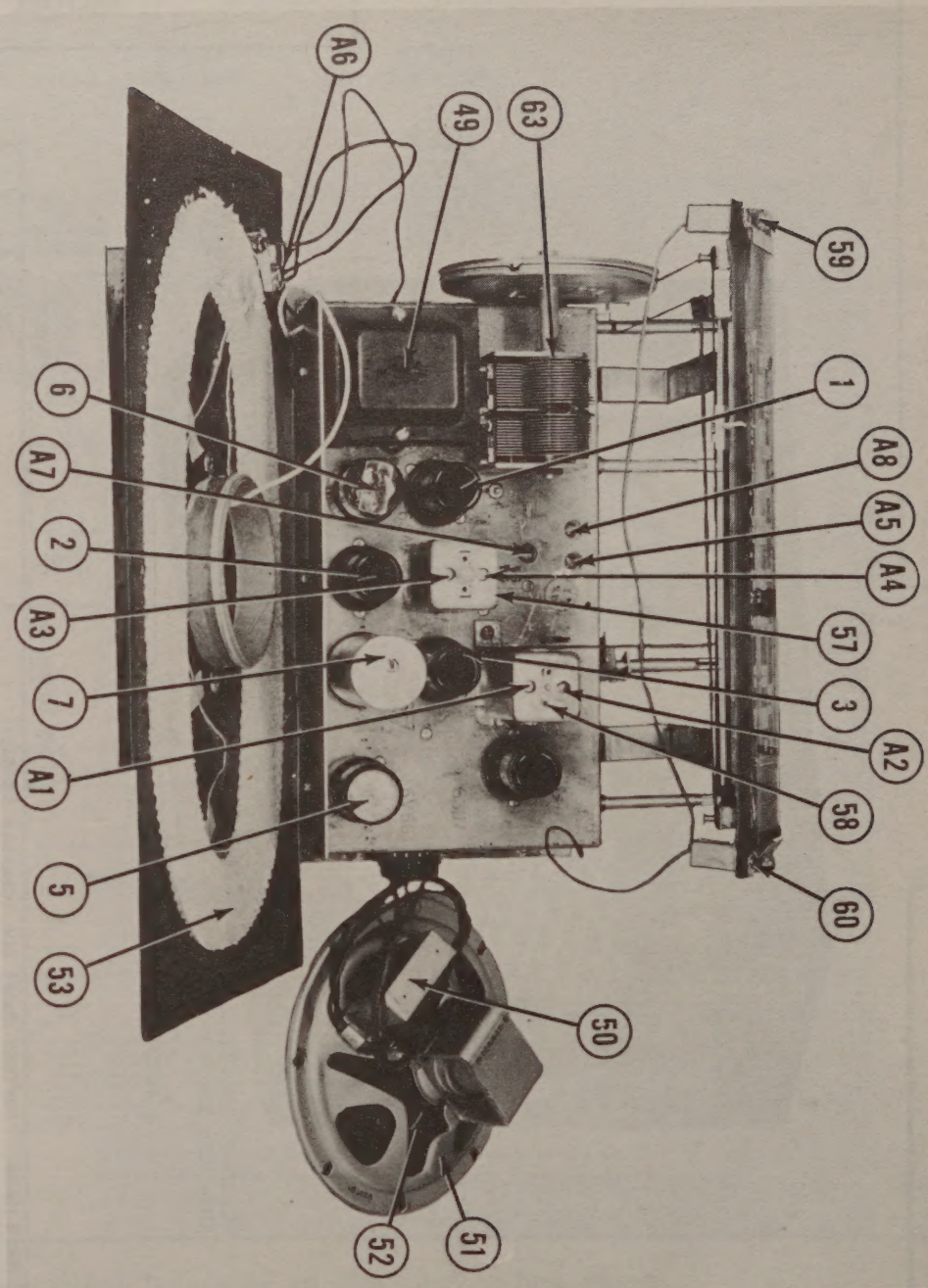
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
30A	500KΩ	1	36X354	TM227	D13-133X	AT-92*	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 30A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
31A	3 Meg.	1	40X280	UM165	D13-140	AM-67-Z	Tone Control-See Note 1
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 31A per instructions
31A	3 Meg.	1	40X275				Tone Control
B	Shaft		Not Req.				

*Use 100KΩ tap, cut other tap off.
Note 1-Attach original arm to tone control shaft to actuate radio-phono switch.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PURITAN PART No.	IRC PART No.	IDENTIFICATION CODES
32	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
33	39KΩ	1	C84393	BTA-39K	Or.-White-Or. Mixer Screen Dropping
34	39KΩ	½	B84393	BTS-39K	Or.-White-Or. Osc. Grid
35	39KΩ	1	C84393	BTA-39K	Or.-White-Or. IF Screen Dropping
36	2200Ω	½	B84222	BTS-2200	Red-Red-Red IF Plate Load
37	1 Meg.	½	B84105	BTS-1 Meg.	Br.-Blk.-Grn. IF Grid
38	2.2 Meg.	½	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
39	47KΩ	½	B85473	BTS-47K	Yl.-Vi.-Or. IF Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONTINUED)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PURITAN PART No.	IRC PART No.	
40	15KΩ	½	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
41	10 Meg.	½	B85106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
42	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. 1st AF Screen Dropping
43	33KΩ	½	B84333	BTS-33K	Or.-Or.-Or. 1st AF Plate Load
44	82KΩ	½	B84823	BTS-82K	Gray-Red-Or. 1st AF Plate Filter
45	470KΩ	½	B85474	BTS-470K	Yl.-Vi.-Yl. Output Grid
46	270Ω	1	C84271	BW-1-270	Red-Vi.-Br. Output Cathode
47	2Ω	½	43X213	BW-½-2.2	Series Pilot Lights
48	1800Ω	2	D84182	BT-2-1800	Br.-Gray-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	PURITAN PART No.	STANCOR PART No.	THORDARSON PART No.	
49	117V AC @ .370A	485V CT @ .060A	6.35V AC @ 2.5A		53X282			

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PURITAN PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
50	6600Ω	3.7Ω	530Ω	1.25Ω	Part of 12A442	A-3823	T-13837†		†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PURITAN PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
51	PM	3.7Ω	12A442	ST-110		
	CONE DIA.	VC DIA.				
52	6"	7/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PURITAN PART No.	MEISSNER PART No.	
53	"B" Loop Ant.	25Ω	1Ω	9A15281		
54	"D" Ant. Coil	1Ω	0Ω	9A1812		
55	"B" Osc. "	1Ω	2Ω	9A1813		Items 55, 56 wound on same form
56	"D" " "		0Ω	9A1813		
57	Input IF	22Ω	20.5Ω	9A1814	16-6658	
58	Output IF	19.8Ω	18.2Ω	9A1815	16-6660	

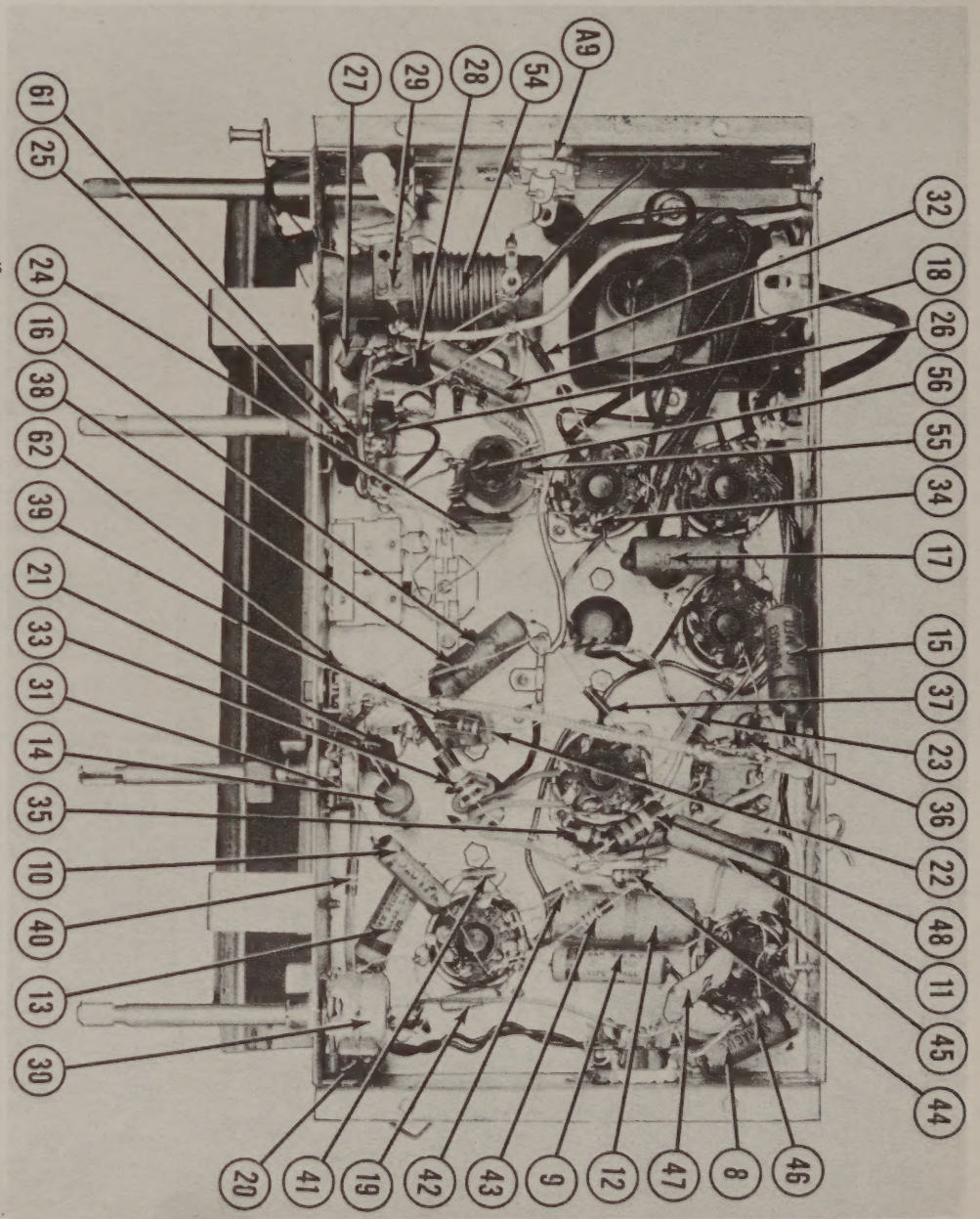
DIAL LIGHT

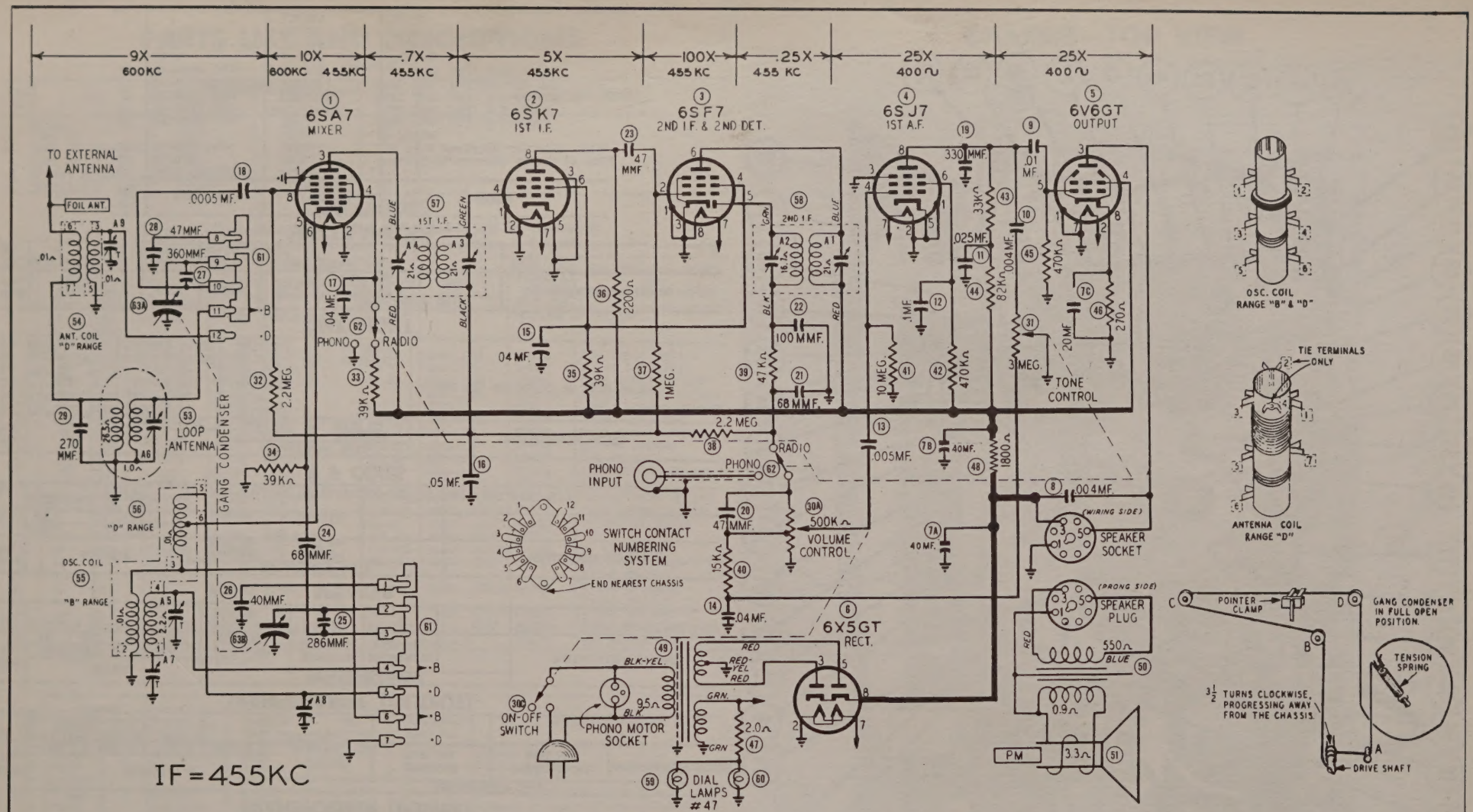
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PURITAN PART No.		
59	Bayonet	6-8	0.15	Brown			Type 47
60	"	6-8	0.15	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	PURITAN PART No.	NOTES
61	Band Switch	2A345	
62	Switch	2A161	Radio-Phono-When 40X280 Is Used
63	Tuning Cap.	14A184	2 Gang Variable Cap with Drive Pulley
A5	Trimmer Cap.	17A109	BC Osc. Adj. 2.5-35MMF
A8	Trimmer Cap.		SW Osc. Adj. 2.5-35MMF
A6	Trimmer Cap.	17A123	BC Ant. Adj. 1.0-12 MMF
A7	Padder Cap.	17A155	BC Osc. Pad 350-430 MMF
A9	Trimmer Cap.	17A164	SW Ant. Adj. 5-50 MMF
	Knob	10A578	Tuning
	"	10A579	Volume
	"	10A580	Tone-Radio-Phono
	"	10A581	SW-BC

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0V.	0V.	207V.DC	60V DC	-.5V. DC	0V.	6.3V.AC	0V.
2	6SK7	0V.	0V.	0V.	-.2V. DC	0V.	60V.DC	6.3V.AC	190V.DC
3	6SF7	0V.	-.5V. DC	0V.	60V.DC	-.45VDC	207V.DC	6.3V.AC	0V.
4	6SJ7	0V.	0V.	0V.	-.35V.DC	0V.	37V.DC	6.3V.AC	35V.D C
5	6V6GT	0V.	6.3V.AC	237V.DC	207V.DC	0V.	0V.	0V.	9.6V.DC
6	6X5GT	0V.	0V.	240V.AC	0V.	240V.AC	0V.	6.3V.AC	245V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0Ω	0Ω	137KΩ	176KΩ	39KΩ	1Ω	.25Ω	4.9MEG
2	6SK7	0Ω	0Ω	0Ω	3MEG	0Ω	176KΩ	.25Ω	357KΩ
3	6SF7	0Ω	4 MEG	0Ω	176KΩ	480KΩ	137KΩ	.25Ω	0Ω
4	6SJ7	0Ω	0Ω	0Ω	12MEG	0Ω	607KΩ	.25Ω	252KΩ
5	6V6GT	0Ω	.25Ω	135KΩ	137KΩ	500KΩ	INF	0Ω	255Ω
6	6X5GT	INF	0Ω	185Ω	INF	195Ω	INF	.25Ω	135KΩ

Resistance readings in the B+ circuits may vary widely according to the condition of the filter capacitors.

The cooperation of the manufacturer of this receiver makes it possible to bring you this service.

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**